

## SEQUENCE LISTING

<110> F. Hoffmann-La Roche AG

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40	Ala	Phe	Thr	Phe	Ser	His	Asp	Tyr	Lys	Gly	Ser	Thr	Ser	His	His
	1940					1945						1950			
45	Leu	Val	Ser	Arg	Lys	Ser	Ile	Ser	Ala	Ala	Leu	Glu	His	Lys	Val
	1955					1960						1965			
50	Ser	Ala	Leu	Leu	Thr	Pro	Ala	Glu	Gln	Thr	Gly	Thr	Trp	Lys	Leu
	1970					1975						1980			
55	Lys	Thr	Gln	Phe	Asn	Asn	Asn	Glu	Tyr	Ser	Gln	Asp	Leu	Asp	Ala
	1985					1990						1995			
60	Tyr	Asn	Thr	Lys	Asp	Lys	Ile	Gly	Val	Glu	Leu	Thr	Gly	Arg	Thr
	2000					2005						2010			
65	Leu	Ala	Asp	Leu	Thr	Leu	Leu	Asp	Ser	Pro	Ile	Lys	Val	Pro	Leu
	2015					2020						2025			
70	Leu	Leu	Ser	Glu	Pro	Ile	Asn	Ile	Ile	Asp	Ala	Leu	Glu	Met	Arg
	2030					2035						2040			
75	Asp	Ala	Val	Glu	Lys	Pro	Gln	Glu	Phe	Thr	Ile	Val	Ala	Phe	Val
	2045					2050						2055			
80	Lys	Tyr	Asp	Lys	Asn	Gln	Asp	Val	His	Ser	Ile	Asn	Leu	Pro	Phe
	2060					2065						2070			
85	Phe	Glu	Thr	Leu	Gln	Glu	Tyr	Phe	Glu	Arg	Asn	Arg	Gln	Thr	Ile
	2075					2080						2085			



	Ile	Val	Val	Val	Glu	Asn	Val	Gln	Arg	Asn	Leu	Lys	His	Ile	Asn
	2090						2095					2100			
5	Ile	Asp	Gln	Phe	Val	Arg	Lys	Tyr	Arg	Ala	Ala	Leu	Gly	Lys	Leu
	2105						2110					2115			
10	Pro	Gln	Gln	Ala	Asn	Asp	Tyr	Leu	Asn	Ser	Phe	Asn	Trp	Glu	Arg
	2120						2125					2130			
15	Gln	Val	Ser	His	Ala	Lys	Glu	Lys	Leu	Thr	Ala	Leu	Thr	Lys	Lys
	2135						2140					2145			
20	Tyr	Arg	Ile	Thr	Glu	Asn	Asp	Ile	Gln	Ile	Ala	Leu	Asp	Asp	Ala
	2150						2155					2160			
25	Lys	Ile	Asn	Phe	Asn	Glu	Lys	Leu	Ser	Gln	Leu	Gln	Thr	Tyr	Met
	2165						2170					2175			
30	Ile	Gln	Phe	Asp	Gln	Tyr	Ile	Lys	Asp	Ser	Tyr	Asp	Leu	His	Asp
	2180						2185					2190			
35	Leu	Lys	Ile	Ala	Ile	Ala	Asn	Ile	Ile	Asp	Glu	Ile	Ile	Glu	Lys
	2195						2200					2205			
40	Leu	Lys	Ser	Leu	Asp	Glu	His	Tyr	His	Ile	Arg	Val	Asn	Leu	Val
	2210						2215					2220			
45	Lys	Thr	Ile	His	Asp	Leu	His	Leu	Phe	Ile	Glu	Asn	Ile	Asp	Phe
	2225						2230					2235			
50	Asn	Lys	Ser	Gly	Ser	Ser	Thr	Ala	Ser	Trp	Ile	Gln	Asn	Val	Asp
	2240						2245					2250			
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	2255						2260					2265			
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	2270						2275					2280			
65	Lys	Leu	Lys	Gln	His	Ile	Glu	Ala	Ile	Asp	Val	Arg	Val	Leu	Leu
	2285						2290					2295			
70	Asp	Gln	Leu	Gly	Thr	Thr	Ile	Ser	Phe	Glu	Arg	Ile	Asn	Asp	Val
	2300						2305					2310			
75	Leu	Glu	His	Val	Lys	His	Phe	Val	Ile	Asn	Leu	Ile	Gly	Asp	Phe
	2315						2320					2325			
80	Glu	Val	Ala	Glu	Lys	Ile	Asn	Ala	Phe	Arg	Ala	Lys	Val	His	Glu
	2330						2335					2340			
85	Leu	Ile	Glu	Arg	Tyr	Glu	Val	Asp	Gln	Gln	Ile	Gln	Val	Leu	Met

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5	Asp Lys 2360	Leu Val Glu Leu	Thr 2365	His Gln Tyr Lys	Leu Lys Glu Thr 2370
10	Ile Gln 2375	Lys Leu Ser Asn	Val 2380	Leu Gln Gln Val	Lys Ile Lys Asp 2385
15	Tyr Phe 2390	Glu Lys Leu Val	Gly 2395	Phe Ile Asp Asp	Ala Val Lys Lys 2400
20	Leu Asn 2405	Glu Leu Ser Phe	Lys 2410	Thr Phe Ile Glu	Asp Val Asn Lys 2415
25	Phe Leu 2420	Asp Met Leu Ile	Lys 2425	Lys Leu Lys Ser	Phe Asp Tyr His 2430
30	Gln Phe 2435	Val Asp Glu Thr	Asn 2440	Asp Lys Ile Arg	Glu Val Thr Gln 2445
35	Arg Leu 2450	Asn Gly Glu Ile	Gln 2455	Ala Leu Glu Leu	Pro Gln Lys Ala 2460
40	Glu Ala 2465	Leu Lys Leu Phe	Leu 2470	Glu Glu Thr Lys	Ala Thr Val Ala 2475
45	Val Tyr 2480	Leu Glu Ser Leu	Gln 2485	Asp Thr Lys Ile	Thr Leu Ile Ile 2490
50	Asn Trp 2495	Leu Gln Glu Ala	Leu 2500	Ser Ser Ala Ser	Leu Ala His Met 2505
55	Lys Ala 2510	Lys Phe Arg Glu	Thr 2515	Leu Glu Asp Thr	Arg Asp Arg Met 2520
60	Tyr Gln 2525	Met Asp Ile Gln	Gln 2530	Glu Leu Gln Arg	Tyr Leu Ser Leu 2535
65	Val Gly 2540	Gln Val Tyr Ser	Thr 2545	Leu Val Thr Tyr	Ile Ser Asp Trp 2550
70	Trp Thr 2555	Leu Ala Ala Lys	Asn 2560	Leu Thr Asp Phe	Ala Glu Gln Tyr 2565
	Ser Ile 2570	Gln Asp Trp Ala	Lys 2575	Arg Met Lys Ala	Leu Val Glu Gln 2580
	Gly Phe 2585	Thr Val Pro Glu	Ile 2590	Lys Thr Ile Leu	Gly Thr Met Pro 2595
	Ala Phe 2600	Glu Val Ser Leu	Gln 2605	Ala Leu Gln Lys	Ala Thr Phe Gln 2610

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 2615 2620 2625  
 5 Val Gln Ile Asn Phe Lys Asp Leu Lys Asn Ile Lys Ile Pro Ser  
 2630 2635 2640  
 10 Arg Phe Ser Thr Pro Glu Phe Thr Ile Leu Asn Thr Phe His Ile  
 2645 2650 2655  
 15 Pro Ser Phe Thr Ile Asp Phe Val Glu Met Lys Val Lys Ile Ile  
 2660 2665 2670  
 20 Arg Thr Ile Asp Gln Met Gln Asn Ser Glu Leu Gln Trp Pro Val  
 2675 2680 2685  
 Pro Asp Ile Tyr Leu Arg Asp Leu Lys Val Glu Asp Ile Pro Leu  
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 25 Ala Arg Ile Thr Leu Pro Asp Phe Arg Leu Pro Glu Ile Ala Ile  
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 30 Pro Glu Phe Ile Ile Pro Thr Leu Asn Leu Asn Asp Phe Gln Val  
 2720 2725 2730  
 35 Pro Asp Leu His Ile Pro Glu Phe Gln Leu Pro His Ile Ser His  
 2735 2740 2745  
 40 Thr Ile Glu Val Pro Thr Phe Gly Lys Leu Tyr Ser Ile Leu Lys  
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 Ile Gln Ser Pro Leu Phe Thr Leu Asp Ala Asn Ala Asp Ile Gly  
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 50 Thr Ala Lys Gly Glu Ser Lys Leu Glu Val Leu Asn Phe Asp Phe  
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 2825 2830 2835  
 His Gly Ser Glu Met Leu Phe Phe Gly Asn Ala Ile Glu Gly Lys  
 2840 2845 2850  
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 2855 2860 2865  
 70 Leu Ser Asn Gly Val Ile Val Lys Ile Asn Asn Gln Leu Thr Leu

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5	Asp Ser 2885	Asn Thr Lys Tyr Phe 2890	His Lys Leu Asn Ile 2895	Pro Lys Leu
10	Asp Phe 2900	Ser Ser Gln Ala Asp 2905	Leu Arg Asn Glu Ile 2910	Lys Thr Leu
15	Leu Lys 2915	Ala Gly His Ile Ala 2920	Trp Thr Ser Ser Gly 2925	Lys Gly Ser
20	Trp Lys 2930	Trp Ala Cys Pro Arg 2935	Phe Ser Asp Glu Gly 2940	Thr His Glu
25	Ser Gln 2945	Ile Ser Phe Thr Ile 2950	Glu Gly Pro Leu Thr 2955	Ser Phe Gly
30	Leu Ser 2960	Asn Lys Ile Asn Ser 2965	Lys His Leu Arg Val 2970	Asn Gln Asn
35	Leu Val 2975	Tyr Glu Ser Gly Ser 2980	Leu Asn Phe Ser Lys 2985	Leu Glu Ile
40	Gln Ser 2990	Gln Val Asp Ser Gln 2995	His Val Gly His Ser 3000	Val Leu Thr
45	Ala Lys 3005	Gly Met Ala Leu Phe 3010	Gly Glu Gly Lys Ala 3015	Glu Phe Thr
50	Gly Arg 3020	His Asp Ala His Leu 3025	Asn Gly Lys Val Ile 3030	Gly Thr Leu
55	Lys Asn 3035	Ser Leu Phe Phe Ser 3040	Ala Gln Pro Phe Glu 3045	Ile Thr Ala
60	Ser Thr 3050	Asn Asn Glu Gly Asn 3055	Leu Lys Val Arg Phe 3060	Pro Leu Arg
65	Leu Thr 3065	Gly Lys Ile Asp Phe 3070	Leu Asn Asn Tyr Ala 3075	Leu Phe Leu
70	Ser Pro 3080	Ser Ala Gln Gln Ala 3085	Ser Trp Gln Val Ser 3090	Ala Arg Phe
75	Asn Gln 3095	Tyr Lys Tyr Asn Gln 3100	Asn Phe Ser Ala Gly 3105	Asn Asn Glu
80	Asn Ile 3110	Met Glu Ala His Val 3115	Gly Ile Asn Gly Glu 3120	Ala Asn Leu
85	Asp Phe 3125	Leu Asn Ile Pro Leu 3130	Thr Ile Pro Glu Met 3135	Arg Leu Pro

	Tyr	Thr	Ile	Ile	Thr	Thr	Pro	Pro	Leu	Lys	Asp	Phe	Ser	Leu	Trp
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5	Glu	Lys	Thr	Gly	Leu	Lys	Glu	Phe	Leu	Lys	Thr	Thr	Lys	Gln	Ser
		3155					3160					3165			
10	Phe	Asp	Leu	Ser	Val	Lys	Ala	Gln	Tyr	Lys	Lys	Asn	Lys	His	Arg
		3170					3175					3180			
15	His	Ser	Ile	Thr	Asn	Pro	Leu	Ala	Val	Leu	Cys	Glu	Phe	Ile	Ser
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20	Gln	Ser	Ile	Lys	Ser	Phe	Asp	Arg	His	Phe	Glu	Lys	Asn	Arg	Asn
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25	Asn	Ala	Leu	Asp	Phe	Val	Thr	Lys	Ser	Tyr	Asn	Glu	Thr	Lys	Ile
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30	Lys	Phe	Asp	Lys	Tyr	Lys	Ala	Glu	Lys	Ser	His	Asp	Glu	Leu	Pro
		3230					3235					3240			
35	Arg	Thr	Phe	Gln	Ile	Pro	Gly	Tyr	Thr	Val	Pro	Val	Val	Asn	Val
		3245					3250					3255			
40	Glu	Val	Ser	Pro	Phe	Thr	Ile	Glu	Met	Ser	Ala	Phe	Gly	Tyr	Val
		3260					3265					3270			
45	Phe	Pro	Lys	Ala	Val	Ser	Met	Pro	Ser	Phe	Ser	Ile	Leu	Gly	Ser
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50	Asp	Val	Arg	Val	Pro	Ser	Tyr	Thr	Leu	Ile	Leu	Pro	Ser	Leu	Glu
		3290					3295					3300			
55	Leu	Pro	Val	Leu	His	Val	Pro	Arg	Asn	Leu	Lys	Leu	Ser	Leu	Pro
		3305					3310					3315			
60	His	Phe	Lys	Glu	Leu	Cys	Thr	Ile	Ser	His	Ile	Phe	Ile	Pro	Ala
		3320					3325					3330			
65	Met	Gly	Asn	Ile	Thr	Tyr	Asp	Phe	Ser	Phe	Lys	Ser	Ser	Val	Ile
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70	Thr	Leu	Asn	Thr	Asn	Ala	Glu	Leu	Phe	Asn	Gln	Ser	Asp	Ile	Val
		3350					3355					3360			
75	Ala	His	Leu	Leu	Ser	Ser	Ser	Ser	Ser	Val	Ile	Asp	Ala	Leu	Gln
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80	Tyr	Lys	Leu	Glu	Gly	Thr	Thr	Arg	Leu	Thr	Arg	Lys	Arg	Gly	Leu
		3380					3385					3390			
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5	Ser His 3410	Asn Ser Thr Val	Ser 3415	Leu Thr Thr Lys	Asn Met Glu Val 3420
10	Ser Val 3425	Ala Lys Thr Thr	Lys 3430	Ala Glu Ile Pro	Ile Leu Arg Met 3435
15	Asn Phe 3440	Lys Gln Glu Leu	Asn 3445	Gly Asn Thr Lys	Ser Lys Pro Thr 3450
20	Val Ser 3455	Ser Ser Met Glu	Phe 3460	Lys Tyr Asp Phe	Asn Ser Ser Met 3465
25	Leu Tyr 3470	Ser Thr Ala Lys	Gly 3475	Ala Val Asp His	Lys Leu Ser Leu 3480
30	Glu Ser 3485	Leu Thr Ser Tyr	Phe 3490	Ser Ile Glu Ser	Ser Thr Lys Gly 3495
35	Asp Val 3500	Lys Gly Ser Val	Leu 3505	Ser Arg Glu Tyr	Ser Gly Thr Ile 3510
40	Ala Ser 3515	Glu Ala Asn Thr	Tyr 3520	Leu Asn Ser Lys	Ser Thr Arg Ser 3525
45	Ser Val 3530	Lys Leu Gln Gly	Thr 3535	Ser Lys Ile Asp	Asp Ile Trp Asn 3540
50	Leu Glu 3545	Val Lys Glu Asn	Phe 3550	Ala Gly Glu Ala	Thr Leu Gln Arg 3555
55	Ile Tyr 3560	Ser Leu Trp Glu	His 3565	Ser Thr Lys Asn	His Leu Gln Leu 3570
60	Glu Gly 3575	Leu Phe Phe Thr	Asn 3580	Gly Glu His Thr	Ser Lys Ala Thr 3585
65	Leu Glu 3590	Leu Ser Pro Trp	Gln 3595	Met Ser Ala Leu	Val Gln Val His 3600
70	Ala Ser 3605	Gln Pro Ser Ser	Phe 3610	His Asp Phe Pro	Asp Leu Gly Gln 3615
	Glu Val 3620	Ala Leu Asn Ala	Asn 3625	Thr Lys Asn Gln	Lys Ile Arg Trp 3630
	Lys Asn 3635	Glu Val Arg Ile	His 3640	Ser Gly Ser Phe	Gln Ser Gln Val 3645
	Glu Leu 3650	Ser Asn Asp Gln	Glu 3655	Lys Ala His Leu	Asp Ile Ala Gly 3660

Ser Leu Glu Gly His Leu Arg Phe Leu Lys Asn Ile Ile Leu Pro  
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 5 Val Tyr Asp Lys Ser Leu Trp Asp Phe Leu Lys Leu Asp Val Thr  
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 10 Thr Ser Ile Gly Arg Arg Gln His Leu Arg Val Ser Thr Ala Phe  
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 15 Val Tyr Thr Lys Asn Pro Asn Gly Tyr Ser Phe Ser Ile Pro Val  
 3710 3715 3720  
 20 Lys Val Leu Ala Asp Lys Phe Ile Thr Pro Gly Leu Lys Leu Asn  
 3725 3730 3735  
 25 Asp Leu Asn Ser Val Leu Val Met Pro Thr Phe His Val Pro Phe  
 3740 3745 3750  
 30 Thr Asp Leu Gln Val Pro Ser Cys Lys Leu Asp Phe Arg Glu Ile  
 3755 3760 3765  
 35 Gln Ile Tyr Lys Lys Leu Arg Thr Ser Ser Phe Ala Leu Asn Leu  
 3770 3775 3780  
 40 Pro Thr Leu Pro Glu Val Lys Phe Pro Glu Val Asp Val Leu Thr  
 3785 3790 3795  
 45 Lys Tyr Ser Gln Pro Glu Asp Ser Leu Ile Pro Phe Phe Glu Ile  
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 3815 3820 3825  
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 3830 3835 3840  
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 65 Glu Gln Thr Ile Glu Ile Pro Ser Ile Lys Phe Ser Val Pro Ala  
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 3875 3880 3885  
 Val Asp Ser Pro Val Tyr Asn Ala Thr Trp Ser Ala Ser Leu Lys  
 3890 3895 3900  
 Asn Lys Ala Asp Tyr Val Glu Thr Val Leu Asp Ser Thr Cys Ser  
 3905 3910 3915  
 Ser Thr Val Gln Phe Leu Glu Tyr Glu Leu Asn Val Leu Gly Thr

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5	His Lys 3935	Ile Glu Asp Gly	Thr 3940	Leu Ala Ser Lys	Thr Lys Gly Thr 3945
10	Leu Ala 3950	His Arg Asp Phe	Ser 3955	Ala Glu Tyr Glu	Glu Asp Gly Lys 3960
15	Phe Glu 3965	Gly Leu Gln Glu	Trp 3970	Glu Gly Lys Ala	His Leu Asn Ile 3975
20	Lys Ser 3980	Pro Ala Phe Thr	Asp 3985	Leu His Leu Arg	Tyr Gln Lys Asp 3990
25	Lys Lys 3995	Gly Ile Ser Thr	Ser 4000	Ala Ala Ser Pro	Ala Val Gly Thr 4005
30	Val Gly 4010	Met Asp Met Asp	Glu 4015	Asp Asp Asp Phe	Ser Lys Trp Asn 4020
35	Phe Tyr 4025	Tyr Ser Pro Gln	Ser 4030	Ser Pro Asp Lys	Lys Leu Thr Ile 4035
40	Phe Lys 4040	Thr Glu Leu Arg	Val 4045	Arg Glu Ser Asp	Glu Glu Thr Gln 4050
45	Ile Lys 4055	Val Asn Trp Glu	Glu 4060	Glu Ala Ala Ser	Gly Leu Leu Thr 4065
50	Ser Leu 4070	Lys Asp Asn Val	Pro 4075	Lys Ala Thr Gly	Val Leu Tyr Asp 4080
55	Tyr Val 4085	Asn Lys Tyr His	Trp 4090	Glu His Thr Gly	Leu Thr Leu Arg 4095
60	Glu Val 4100	Ser Ser Lys Leu	Arg 4105	Arg Asn Leu Gln	Asn Asn Ala Glu 4110
65	Trp Val 4115	Tyr Gln Gly Ala	Ile 4120	Arg Gln Ile Asp	Asp Ile Asp Val 4125
70	Arg Phe 4130	Gln Lys Ala Ala	Ser 4135	Gly Thr Thr Gly	Thr Tyr Gln Glu 4140
	Trp Lys 4145	Asp Lys Ala Gln	Asn 4150	Leu Tyr Gln Glu	Leu Leu Thr Gln 4155
	Glu Gly 4160	Gln Ala Ser Phe	Gln 4165	Gly Leu Lys Asp	Asn Val Phe Asp 4170
	Gly Leu 4175	Val Arg Val Thr	Gln 4180	Lys Phe His Met	Lys Val Lys His 4185



Leu Ile Asp Ser Leu Ile Asp Phe Leu Asn Phe Pro Arg Phe Gln  
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 5 Phe Pro Gly Lys Pro Gly Ile Tyr Thr Arg Glu Glu Leu Cys Thr  
 4205 4210 4215  
 10 Met Phe Ile Arg Glu Val Gly Thr Val Leu Ser Gln Val Tyr Ser  
 4220 4225 4230  
 15 Lys Val His Asn Gly Ser Glu Ile Leu Phe Ser Tyr Phe Gln Asp  
 4235 4240 4245  
 20 Leu Val Ile Thr Leu Pro Phe Glu Leu Arg Lys His Lys Leu Ile  
 4250 4255 4260  
 Asp Val Ile Ser Met Tyr Arg Glu Leu Leu Lys Asp Leu Ser Lys  
 4265 4270 4275  
 25 Glu Ala Gln Glu Val Phe Lys Ala Ile Gln Ser Leu Lys Thr Thr  
 4280 4285 4290  
 30 Glu Val Leu Arg Asn Leu Gln Asp Leu Leu Gln Phe Ile Phe Gln  
 4295 4300 4305  
 35 Leu Ile Glu Asp Asn Ile Lys Gln Leu Lys Glu Met Lys Phe Thr  
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 Tyr Leu Ile Asn Tyr Ile Gln Asp Glu Ile Asn Thr Ile Phe Asn  
 4325 4330 4335  
 40 Asp Tyr Ile Pro Tyr Val Phe Lys Leu Leu Lys Glu Asn Leu Cys  
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 45 Leu Asn Leu His Lys Phe Asn Glu Phe Ile Gln Asn Glu Leu Gln  
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 50 Glu Ala Ser Gln Glu Leu Gln Gln Ile His Gln Tyr Ile Met Ala  
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 55 Ile Asp Ile Tyr Ser Leu Thr Val Asp Ser Arg Val Ser Ser Arg Phe  
 35 40 45  
 60 Ala His Thr Val Val Thr Ser Arg Val Val Asn Arg Ala Asn Thr Val  
 50 55 60  
 65 Gln Glu Ala Thr Phe Gln Met Glu Leu Pro Lys Lys Ala Phe Ile Thr  
 65 70 75 80  
 70 Asn Phe Ser Met Asn Ile Asp Gly Met Thr Tyr Pro Gly Ile Ile Lys  
 85 90 95  
 Glu Lys Ala Glu Ala Gln Ala Gln Tyr Ser Ala Ala Val Ala Lys Gly  
 100 105 110

Lys Ser Ala Gly Leu Val Lys Ala Thr Gly Arg Asn Met Glu Gln Phe  
                   115                  120                  125  
 5 Gln Val Ser Val Ser Val Ala Pro Asn Ala Lys Ile Thr Phe Glu Leu  
           130                  135                  140  
 10 Val Tyr Glu Glu Leu Leu Lys Arg Arg Leu Gly Val Tyr Glu Leu Leu  
       145                  150                  155                  160  
 15 Leu Lys Val Arg Pro Gln Gln Leu Val Lys His Leu Gln Met Asp Ile  
                   165                  170                  175  
 20 His Ile Phe Glu Pro Gln Gly Ile Ser Phe Leu Glu Thr Glu Ser Thr  
                   180                  185                  190  
 25 Phe Met Thr Asn Gln Leu Val Asp Ala Leu Thr Thr Trp Gln Asn Lys  
                   195                  200                  205  
 30 Thr Lys Ala His Ile Arg Phe Lys Pro Thr Leu Ser Gln Gln Gln Lys  
           210                  215                  220  
 35 Ser Pro Glu Gln Gln Glu Thr Val Leu Asp Gly Asn Leu Ile Ile Arg  
       225                  230                  235                  240  
 40 Tyr Asp Val Asp Arg Ala Ile Ser Gly Gly Ser Ile Gln Ile Glu Asn  
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 45 Gly Tyr Phe Val His Tyr Phe Ala Pro Glu Gly Leu Thr Thr Met Pro  
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 50 Lys Asn Val Val Phe Val Ile Asp Lys Ser Gly Ser Met Ser Gly Arg  
                   275                  280                  285  
 55 Lys Ile Gln Gln Thr Arg Glu Ala Leu Ile Lys Ile Leu Asp Asp Leu  
           290                  295                  300  
 60 Ser Pro Arg Asp Gln Phe Asn Leu Ile Val Phe Ser Thr Glu Ala Thr  
       305                  310                  315                  320  
 65 Gln Trp Arg Pro Ser Leu Val Pro Ala Ser Ala Glu Asn Val Asn Lys  
                   325                  330                  335  
 70 Ala Arg Ser Phe Ala Ala Gly Ile Gln Ala Leu Gly Gly Thr Asn Ile  
                   340                  345                  350  
 Asn Asp Ala Met Leu Met Ala Val Gln Leu Leu Asp Ser Ser Asn Gln  
           355                  360                  365  
 Glu Glu Arg Leu Pro Glu Gly Ser Val Ser Leu Ile Ile Leu Leu Thr  
       370                  375                  380  
 Asp Gly Asp Pro Thr Val Gly Glu Thr Asn Pro Arg Ser Ile Gln Asn

	385		390		395		400
5	Asn Val Arg Glu	Ala Val Ser Gly Arg Tyr	Ser Leu Phe Cys	Leu Gly			
		405		410			415
10	Phe Gly Phe Asp	Val Ser Tyr Ala Phe	Leu Glu Lys Leu	Ala Leu Asp			
		420		425			430
15	Asn Gly Gly Leu	Ala Arg Arg Ile His Glu Asp Ser	Asp Ser Ala Leu				
		435		440			445
20	Gln Leu Gln Asp	Phe Tyr Gln Glu Val Ala Asn Pro	Leu Leu Thr Ala				
		450		455			460
25	Val Thr Phe Glu Tyr	Pro Ser Asn Ala Val Glu Glu Val Thr	Gln Asn				
		465		470			480
30	Asn Phe Arg Leu	Leu Phe Lys Gly Ser Glu Met Val Val	Ala Gly Lys				
		485		490			495
35	Leu Gln Asp Arg	Gly Pro Asp Val Leu Thr Ala Thr Val	Ser Gly Lys				
		500		505			510
40	Leu Pro Thr Gln	Asn Ile Thr Phe Gln Thr Glu Ser Ser	Val Ala Glu				
		515		520			525
45	Gln Glu Ala Glu	Phe Gln Ser Pro Lys Tyr Ile Phe His Asn Phe Met					
		530		535			540
50	Glu Arg Leu Trp	Ala Tyr Leu Thr Ile Gln Gln Leu Leu Glu Gln Thr					
		545		550			555
55	Val Ser Ala Ser	Asp Ala Asp Gln Gln Ala Leu Arg Asn Gln Ala Leu					
		565		570			575
60	Asn Leu Ser Leu	Ala Tyr Ser Phe Val Thr Pro Leu Thr Ser Met Val					
		580		585			590
65	Val Thr Lys Pro	Asp Asp Gln Glu Gln Ser Gln Val Ala Glu Lys Pro					
		595		600			605
70	Met Glu Gly Glu	Ser Arg Asn Arg Asn Val His Ser Gly Ser Thr Phe					
		610		615			620
75	Phe Lys Tyr Tyr	Leu Gln Gly Ala Lys Ile Pro Lys Pro Glu Ala Ser					
		625		630			640
80	Phe Ser Pro Arg	Arg Gly Trp Asn Arg Gln Ala Gly Ala Ala Gly Ser					
		645		650			655
85	Arg Met Asn Phe	Arg Pro Gly Val Leu Ser Ser Arg Gln Leu Gly Leu					
		660		665			670

Pro Gly Pro Pro Asp Val Pro Asp His Ala Ala Tyr His Pro Phe Arg  
 675 680 685  
 5 Arg Leu Ala Ile Leu Pro Ala Ser Ala Pro Pro Ala Thr Ser Asn Pro  
 690 695 700  
 10 Asp Pro Ala Val Ser Arg Val Met Asn Met Lys Ile Glu Glu Thr Thr  
 705 710 715 720  
 15 Met Thr Thr Gln Thr Pro Ala Pro Ile Gln Ala Pro Ser Ala Ile Leu  
 725 730 735  
 20 Pro Leu Pro Gly Gln Ser Val Glu Arg Leu Cys Val Asp Pro Arg His  
 740 745 750  
 25 Arg Gln Gly Pro Val Asn Leu Leu Ser Asp Pro Glu Gln Gly Val Glu  
 755 760 765  
 30 Val Thr Gly Gln Tyr Glu Arg Glu Lys Ala Gly Phe Ser Trp Ile Glu  
 770 775 780  
 35 Val Thr Phe Lys Asn Pro Leu Val Trp Val His Ala Ser Pro Glu His  
 785 790 795 800  
 40 Val Val Val Thr Arg Asn Arg Arg Ser Ser Ala Tyr Lys Trp Lys Glu  
 805 810 815  
 45 Thr Leu Phe Ser Val Met Pro Gly Leu Lys Met Thr Met Asp Lys Thr  
 820 825 830  
 50 Gly Leu Leu Leu Leu Ser Asp Pro Asp Lys Val Thr Ile Gly Leu Leu  
 835 840 845  
 55 Phe Trp Asp Gly Arg Gly Glu Gly Leu Arg Leu Leu Leu Arg Asp Thr  
 850 855 860  
 60 Asp Arg Phe Ser Ser His Val Gly Gly Thr Leu Gly Gln Phe Tyr Gln  
 865 870 875 880  
 65 Glu Val Leu Trp Gly Ser Pro Ala Ala Ser Asp Asp Gly Arg Arg Thr  
 885 890 895  
 70 Leu Arg Val Gln Gly Asn Asp His Ser Ala Thr Arg Glu Arg Arg Leu  
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15 Ser Leu Gln Lys Pro Arg Leu Leu Leu Phe Ser Pro Ser Val Val His  
 20 25 30

20 Leu Gly Val Pro Leu Ser Val Gly Val Gln Leu Gln Asp Val Pro Arg  
 35 40 45

25 Gly Gln Val Val Lys Gly Ser Val Phe Leu Arg Asn Pro Ser Arg Asn  
 50 55 60

30 Asn Val Pro Cys Ser Pro Lys Val Asp Phe Thr Leu Ser Ser Glu Arg  
 65 70 75 80

35 Asp Phe Ala Leu Leu Ser Leu Gln Val Pro Leu Lys Asp Ala Lys Ser  
 85 90 95

40 Cys Gly Leu His Gln Leu Leu Arg Gly Pro Glu Val Gln Leu Val Ala  
 100 105 110

45 His Ser Pro Trp Leu Lys Asp Ser Leu Ser Arg Thr Thr Asn Ile Gln  
 115 120 125

50 Gly Ile Asn Leu Leu Phe Ser Ser Arg Arg Gly His Leu Phe Leu Gln  
 130 135 140

55 Thr Asp Gln Pro Ile Tyr Asn Pro Gly Gln Arg Val Arg Tyr Arg Val  
 145 150 155 160

60 Phe Ala Leu Asp Gln Lys Met Arg Pro Ser Thr Asp Thr Ile Thr Val  
 165 170 175

65 Met Val Glu Asn Ser His Gly Leu Arg Val Arg Lys Lys Glu Val Tyr  
 180 185 190

70 Met Pro Ser Ser Ile Phe Gln Asp Asp Phe Val Ile Pro Asp Ile Ser  
 195 200 205

Glu Pro Gly Thr Trp Lys Ile Ser Ala Arg Phe Ser Asp Gly Leu Glu  
 210 215 220

Ser Asn Ser Ser Thr Gln Phe Glu Val Lys Lys Tyr Val Leu Pro Asn  
 225 230 235 240

Phe Glu Val Lys Ile Thr Pro Gly Lys Pro Tyr Ile Leu Thr Val Pro  
 245 250 255  
 5 Gly His Leu Asp Glu Met Gln Leu Asp Ile Gln Ala Arg Tyr Ile Tyr  
 260 265 270  
 10 Gly Lys Pro Val Gln Gly Val Ala Tyr Val Arg Phe Gly Leu Leu Asp  
 275 280 285  
 15 Glu Asp Gly Lys Lys Thr Phe Phe Arg Gly Leu Glu Ser Gln Thr Lys  
 290 295 300  
 20 Leu Val Asn Gly Gln Ser His Ile Ser Leu Ser Lys Ala Glu Phe Gln  
 305 310 315 320  
 Asp Ala Leu Glu Lys Leu Asn Met Gly Ile Thr Asp Leu Gln Gly Leu  
 325 330 335  
 25 Arg Leu Tyr Val Ala Ala Ala Ile Ile Glu Ser Pro Gly Gly Glu Met  
 340 345 350  
 30 Glu Glu Ala Glu Leu Thr Ser Trp Tyr Phe Val Ser Ser Pro Phe Ser  
 355 360 365  
 35 Leu Asp Leu Ser Lys Thr Lys Arg His Leu Val Pro Gly Ala Pro Phe  
 370 375 380  
 40 Leu Leu Gln Ala Leu Val Arg Glu Met Ser Gly Ser Pro Ala Ser Gly  
 385 390 395 400  
 Ile Pro Val Lys Val Ser Ala Thr Val Ser Ser Pro Gly Ser Val Pro  
 405 410 415  
 45 Glu Val Gln Asp Ile Gln Gln Asn Thr Asp Gly Ser Gly Gln Val Ser  
 420 425 430  
 50 Ile Pro Ile Ile Ile Pro Gln Thr Ile Ser Glu Leu Gln Leu Ser Val  
 435 440 445  
 55 Ser Ala Gly Ser Pro His Pro Ala Ile Ala Arg Leu Thr Val Ala Ala  
 450 455 460  
 60 Pro Pro Ser Gly Gly Pro Gly Phe Leu Ser Ile Glu Arg Pro Asp Ser  
 465 470 475 480  
 Arg Pro Pro Arg Val Gly Asp Thr Leu Asn Leu Asn Leu Arg Ala Val  
 485 490 495  
 65 Gly Ser Gly Ala Thr Phe Ser His Tyr Tyr Tyr Met Ile Leu Ser Arg  
 500 505 510  
 70 Gly Gln Ile Val Phe Met Asn Arg Glu Pro Lys Arg Thr Leu Thr Ser

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5	Val Ser Val Phe Val Asp His His Leu Ala Pro Ser Phe Tyr Phe Val		
	530	535	540
10	Ala Phe Tyr Tyr His Gly Asp His Pro Val Ala Asn Ser Leu Arg Val		
	545	550	555
	Asp Val Gln Ala Gly Ala Cys Glu Gly Lys Leu Glu Leu Ser Val Asp		
		565	570
15	Gly Ala Lys Gln Tyr Arg Asn Gly Glu Ser Val Lys Leu His Leu Glu		
		580	585
20	Thr Asp Ser Leu Ala Leu Val Ala Leu Gly Ala Leu Asp Thr Ala Leu		
		595	600
25	Tyr Ala Ala Gly Ser Lys Ser His Lys Pro Leu Asn Met Gly Lys Val		
		610	615
30	Phe Glu Ala Met Asn Ser Tyr Asp Leu Gly Cys Gly Pro Gly Gly Gly		
		625	630
	Asp Ser Ala Leu Gln Val Phe Gln Ala Ala Gly Leu Ala Phe Ser Asp		
		645	650
35	Gly Asp Gln Trp Thr Leu Ser Arg Lys Arg Leu Ser Cys Pro Lys Glu		
		660	665
40	Lys Thr Thr Arg Lys Lys Arg Asn Val Asn Phe Gln Lys Ala Ile Asn		
		675	680
45	Glu Lys Leu Gly Gln Tyr Ala Ser Pro Thr Ala Lys Arg Cys Cys Gln		
		690	695
50	Asp Gly Val Thr Arg Leu Pro Met Met Arg Ser Cys Glu Gln Arg Ala		
		705	710
	Ala Arg Val Gln Gln Pro Asp Cys Arg Glu Pro Phe Leu Ser Cys Cys		
		725	730
55	Gln Phe Ala Glu Ser Leu Arg Lys Lys Ser Arg Asp Lys Gly Gln Ala		
		740	745
60	Gly Leu Gln Arg Ala Leu Glu Ile Leu Gln Glu Glu Asp Leu Ile Asp		
		755	760
65	Glu Asp Asp Ile Pro Val Arg Ser Phe Phe Pro Glu Asn Trp Leu Trp		
		770	775
70	Arg Val Glu Thr Val Asp Arg Phe Gln Ile Leu Thr Leu Trp Leu Pro		
		785	790
			795
			800



Asp Ser Leu Thr Thr Trp Glu Ile His Gly Leu Ser Leu Ser Lys Thr  
 805 810 815  
 5 Lys Gly Leu Cys Val Ala Thr Pro Val Gln Leu Arg Val Phe Arg Glu  
 820 825 830  
 10 Phe His Leu His Leu Arg Leu Pro Met Ser Val Arg Arg Phe Glu Gln  
 835 840 845  
 15 Leu Glu Leu Arg Pro Val Leu Tyr Asn Tyr Leu Asp Lys Asn Leu Thr  
 850 855 860  
 20 Val Ser Val His Val Ser Pro Val Glu Gly Leu Cys Leu Ala Gly Gly  
 865 870 875 880  
 25 Gly Gly Leu Ala Gln Gln Val Leu Val Pro Ala Gly Ser Ala Arg Pro  
 885 890 895  
 30 Val Ala Phe Ser Val Val Pro Thr Ala Ala Ala Ala Val Ser Leu Lys  
 900 905 910  
 35 Val Val Ala Arg Gly Ser Phe Glu Phe Pro Val Gly Asp Ala Val Ser  
 915 920 925  
 40 Lys Val Leu Gln Ile Glu Lys Glu Gly Ala Ile His Arg Glu Glu Leu  
 930 935 940  
 45 Val Tyr Glu Leu Asn Pro Leu Asp His Arg Gly Arg Thr Leu Glu Ile  
 945 950 955 960  
 50 Pro Gly Asn Ser Asp Pro Asn Met Ile Pro Asp Gly Asp Phe Asn Ser  
 965 970 975  
 55 Tyr Val Arg Val Thr Ala Ser Asp Pro Leu Asp Thr Leu Gly Ser Glu  
 980 985 990  
 60 Gly Ala Leu Ser Pro Gly Gly Val Ala Ser Leu Leu Arg Leu Pro Arg  
 995 1000 1005  
 65 Gly Cys Gly Glu Gln Thr Met Ile Tyr Leu Ala Pro Thr Leu Ala  
 1010 1015 1020  
 70 Ala Ser Arg Tyr Leu Asp Lys Thr Glu Gln Trp Ser Thr Leu Pro  
 1025 1030 1035  
 Pro Glu Thr Lys Asp His Ala Val Asp Leu Ile Gln Lys Gly Tyr  
 1040 1045 1050  
 Met Arg Ile Gln Gln Phe Arg Lys Ala Asp Gly Ser Tyr Ala Ala  
 1055 1060 1065  
 70 Trp Leu Ser Arg Asp Ser Ser Thr Trp Leu Thr Ala Phe Val Leu

	1070	1075	1080	
5	Lys Val 1085	Leu Ser Leu Ala Gln 1090	Glu Gln Val Gly Gly 1095	Ser Pro Glu
10	Lys Leu 1100	Gln Glu Thr Ser Asn 1105	Trp Leu Leu Ser Gln 1110	Gln Gln Ala
15	Asp Gly 1115	Ser Phe Gln Asp Pro 1120	Cys Pro Val Leu Asp 1125	Arg Ser Met
20	Gln Gly 1130	Gly Leu Val Gly Asn 1135	Asp Glu Thr Val Ala 1140	Leu Thr Ala
25	Phe Val 1145	Thr Ile Ala Leu His 1150	His Gly Leu Ala Val 1155	Phe Gln Asp
30	Glu Gly 1160	Ala Glu Pro Leu Lys 1165	Gln Arg Val Glu Ala 1170	Ser Ile Ser
35	Lys Ala 1175	Asn Ser Phe Leu Gly 1180	Glu Lys Ala Ser Ala 1185	Gly Leu Leu
40	Gly Ala 1190	His Ala Ala Ala Ile 1195	Thr Ala Tyr Ala Leu 1200	Ser Leu Thr
45	Lys Ala 1205	Pro Val Asp Leu Leu 1210	Gly Val Ala His Asn 1215	Asn Leu Met
50	Ala Met 1220	Ala Gln Glu Thr Gly 1225	Asp Asn Leu Tyr Trp 1230	Gly Ser Val
55	Thr Gly 1235	Ser Gln Ser Asn Ala 1240	Val Ser Pro Thr Pro 1245	Ala Pro Arg
60	Asn Pro 1250	Ser Asp Pro Met Pro 1255	Gln Ala Pro Ala Leu 1260	Trp Ile Glu
65	Thr Thr 1265	Ala Tyr Ala Leu Leu 1270	His Leu Leu Leu His 1275	Glu Gly Lys
70	Ala Glu 1280	Met Ala Asp Gln Ala 1285	Ser Ala Trp Leu Thr 1290	Arg Gln Gly
	Ser Phe 1295	Gln Gly Gly Phe Arg 1300	Ser Thr Gln Asp Thr 1305	Val Ile Ala
	Leu Asp 1310	Ala Leu Ser Ala Tyr 1315	Trp Ile Ala Ser His 1320	Thr Thr Glu
	Glu Arg 1325	Gly Leu Asn Val Thr 1330	Leu Ser Ser Thr Gly 1335	Arg Asn Gly

	Phe	Lys	Ser	His	Ala	Leu	Gln	Leu	Asn	Asn	Arg	Gln	Ile	Arg	Gly
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5	Leu	Glu	Glu	Glu	Leu	Gln	Phe	Ser	Leu	Gly	Ser	Lys	Ile	Asn	Val
		1355					1360					1365			
10	Lys	Val	Gly	Gly	Asn	Ser	Lys	Gly	Thr	Leu	Lys	Val	Leu	Arg	Thr
		1370					1375					1380			
15	Tyr	Asn	Val	Leu	Asp	Met	Lys	Asn	Thr	Thr	Cys	Gln	Asp	Leu	Gln
		1385					1390					1395			
20	Ile	Glu	Val	Thr	Val	Lys	Gly	His	Val	Glu	Tyr	Thr	Met	Glu	Ala
		1400					1405					1410			
	Asn	Glu	Asp	Tyr	Glu	Asp	Tyr	Glu	Tyr	Asp	Glu	Leu	Pro	Ala	Lys
		1415					1420					1425			
25	Asp	Asp	Pro	Asp	Ala	Pro	Leu	Gln	Pro	Val	Thr	Pro	Leu	Gln	Leu
		1430					1435					1440			
30	Phe	Glu	Gly	Arg	Arg	Asn	Arg	Arg	Arg	Arg	Glu	Ala	Pro	Lys	Val
		1445					1450					1455			
35	Val	Glu	Glu	Gln	Glu	Ser	Arg	Val	His	Tyr	Thr	Val	Cys	Ile	Trp
		1460					1465					1470			
40	Arg	Asn	Gly	Lys	Val	Gly	Leu	Ser	Gly	Met	Ala	Ile	Ala	Asp	Val
		1475					1480					1485			
	Thr	Leu	Leu	Ser	Gly	Phe	His	Ala	Leu	Arg	Ala	Asp	Leu	Glu	Lys
		1490					1495					1500			
45	Leu	Thr	Ser	Leu	Ser	Asp	Arg	Tyr	Val	Ser	His	Phe	Glu	Thr	Glu
		1505					1510					1515			
50	Gly	Pro	His	Val	Leu	Leu	Tyr	Phe	Asp	Ser	Val	Pro	Thr	Ser	Arg
		1520					1525					1530			
55	Glu	Cys	Val	Gly	Phe	Glu	Ala	Val	Gln	Glu	Val	Pro	Val	Gly	Leu
		1535					1540					1545			
60	Val	Gln	Pro	Ala	Ser	Ala	Thr	Leu	Tyr	Asp	Tyr	Tyr	Asn	Pro	Glu
		1550					1555					1560			
	Arg	Arg	Cys	Ser	Val	Phe	Tyr	Gly	Ala	Pro	Ser	Lys	Ser	Arg	Leu
		1565					1570					1575			
65	Leu	Ala	Thr	Leu	Cys	Ser	Ala	Glu	Val	Cys	Gln	Cys	Ala	Glu	Gly
		1580					1585					1590			
70	Lys	Cys	Pro	Arg	Gln	Arg	Arg	Ala	Leu	Glu	Arg	Gly	Leu	Gln	Asp

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5	Glu Asp 1610	Gly Tyr Arg Met	Lys 1615	Phe Ala Cys Tyr	Tyr 1620
10	Glu Tyr 1625	Gly Phe Gln Val	Lys 1630	Val Leu Arg Glu	Asp 1635
15	Ala Phe 1640	Arg Leu Phe Glu	Thr 1645	Lys Ile Thr Gln	Val 1650
20	Thr Lys 1655	Asp Val Lys Ala	Ala 1660	Ala Asn Gln Met	Arg 1665
25	Val Arg 1670	Ala Ser Cys Arg	Leu 1675	Arg Leu Glu Pro	Gly 1680
30	Leu Ile 1685	Met Gly Leu Asp	Gly 1690	Ala Thr Tyr Asp	Leu 1695
35	Pro Gln 1700	Tyr Leu Leu Asp	Ser 1705	Asn Ser Trp Ile	Glu 1710
40	Ser Glu 1715	Arg Leu Cys Arg	Ser 1720	Thr Arg Gln Arg	Ala 1725
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120	Ile Leu Arg Leu	Glu Ser Glu Glu	Thr Met Val Leu	Glu Ala His Asp	
125	35	40	45		
130	Ala Gln Gly Asp	Val Pro Val Thr	Val Thr Val His	Asp Phe Pro Gly	
135	50	55	60		

Lys Lys Leu Val Leu Ser Ser Glu Lys Thr Val Leu Thr Pro Ala Thr  
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 5 Asn His Met Gly Asn Val Thr Phe Thr Ile Pro Ala Asn Arg Glu Phe  
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 10 Lys Ser Glu Lys Gly Arg Asn Lys Phe Val Thr Val Gln Ala Thr Phe  
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 30 Arg Thr Val Met Val Asn Ile Glu Asn Pro Glu Gly Ile Pro Val Lys  
 165 170 175  
 35 Gln Asp Ser Leu Ser Ser Gln Asn Gln Leu Gly Val Leu Pro Leu Ser  
 180 185 190  
 40 Trp Asp Ile Pro Glu Leu Val Asn Met Gly Gln Trp Lys Ile Arg Ala  
 195 200 205  
 45 Tyr Tyr Glu Asn Ser Pro Gln Gln Val Phe Ser Thr Glu Phe Glu Val  
 210 215 220  
 50 Lys Glu Tyr Val Leu Pro Ser Phe Glu Val Ile Val Glu Pro Thr Glu  
 225 230 235 240  
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 245 250 255  
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 260 265 270  
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 275 280 285  
 70 Lys Arg Ile Pro Ile Glu Asp Gly Ser Gly Glu Val Val Leu Ser Arg  
 290 295 300  
 75 Lys Val Leu Leu Asp Gly Val Gln Asn Leu Arg Ala Glu Asp Leu Val  
 305 310 315 320  
 80 Gly Lys Ser Leu Tyr Val Ser Ala Thr Val Ile Leu His Ser Gly Ser  
 325 330 335  
 85 Asp Met Val Gln Ala Glu Arg Ser Gly Ile Pro Ile Val Thr Ser Pro

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5	Tyr Gln Ile 355	His Phe Thr Lys	Thr Pro Lys Tyr Phe 360	Lys Pro Gly Met 365	
10	Pro Phe Asp Leu Met Val 370	Phe Val Thr Asn Pro 375	Asp Gly Ser Pro Ala 380		
15	Tyr Arg Val Pro Val 385	Ala Val Gln Gly Glu 390	Asp Thr Val Gln Ser 395	Leu 400	
20	Thr Gln Gly Asp 405	Val Ala Lys Leu Ser 410	Ile Asn Thr His 415	Pro Ser	
25	Gln Lys Pro Leu Ser Ile Thr Val 420	Arg Thr Lys Lys Gln Glu 425	Leu Ser		
30	Glu Ala Glu Gln Ala Thr Arg Thr Met Gln Ala Leu Pro Tyr Ser Thr 435				
35	Val Gly Asn Ser Asn Asn Tyr Leu His Leu Ser Val Leu Arg Thr Glu 450	455	460		
40	Leu Arg Pro Gly Glu Thr Leu Asn Val Asn Phe Leu Leu Arg Met Asp 465	470	475	480	
45	Arg Ala His Glu Ala Lys Ile Arg Tyr Tyr Thr Tyr Leu Ile Met Asn 485	490	495		
50	Lys Gly Arg Leu Leu Lys Ala Gly Arg Gln Val Arg Glu Pro Gly Gln 500	505	510		
55	Asp Leu Val Val Leu Pro Leu Ser Ile Thr Thr Asp Phe Ile Pro Ser 515	520	525		
60	Phe Arg Leu Val Ala Tyr Tyr Thr Leu Ile Gly Ala Ser Gly Gln Arg 530	535	540		
65	Glu Val Val Ala Asp Ser Val Trp Val Asp Val Lys Asp Ser Cys Val 545	550	555	560	
70	Gly Ser Leu Val Val Lys Ser Gly Gln Ser Glu Asp Arg Gln Pro Val 565	570	575		
	Pro Gly Gln Gln Met Thr Leu Lys Ile Glu Gly Asp His Gly Ala Arg 580	585	590		
	Val Val Leu Val Ala Val Asp Lys Gly Val Phe Val Leu Asn Lys Lys 595	600	605		
	Asn Lys Leu Thr Gln Ser Lys Ile Trp Asp Val Val Glu Lys Ala Asp 610	615	620		

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5	Lys Ala Ala Val Tyr His His Phe Ile Ser Asp Gly Val Arg Lys Ser 915 920 925		
10	Leu Lys Val Val Pro Glu Gly Ile Arg Met Asn Lys Thr Val Ala Val 930 935 940		
15	Arg Thr Leu Asp Pro Glu Arg Leu Gly Arg Glu Gly Val Gln Lys Glu 945 950 955 960		
20	Asp Ile Pro Pro Ala Asp Leu Ser Asp Gln Val Pro Asp Thr Glu Ser 965 970 975		
25	Glu Thr Arg Ile Leu Leu Gln Gly Thr Pro Val Ala Gln Met Thr Glu 980 985 990		
30	Asp Ala Val Asp Ala Glu Arg Leu Lys His Leu Ile Val Thr Pro Ser 995 1000 1005		
35	Gly Cys Gly Glu Gln Asn Met Ile Gly Met Thr Pro Thr Val Ile 1010 1015 1020		
40	Ala Val His Tyr Leu Asp Glu Thr Glu Gln Trp Glu Lys Phe Gly 1025 1030 1035		
45	Leu Glu Lys Arg Gln Gly Ala Leu Glu Leu Ile Lys Lys Gly Tyr 1040 1045 1050		
50	Thr Gln Gln Leu Ala Phe Arg Gln Pro Ser Ser Ala Phe Ala Ala 1055 1060 1065		
55	Phe Val Lys Arg Ala Pro Ser Thr Trp Leu Thr Ala Tyr Val Val 1070 1075 1080		
60	Lys Val Phe Ser Leu Ala Val Asn Leu Ile Ala Ile Asp Ser Gln 1085 1090 1095		
65	Val Leu Cys Gly Ala Val Lys Trp Leu Ile Leu Glu Lys Gln Lys 1100 1105 1110		
70	Pro Asp Gly Val Phe Gln Glu Asp Ala Pro Val Ile His Gln Glu 1115 1120 1125		
	Met Ile Gly Gly Leu Arg Asn Asn Asn Glu Lys Asp Met Ala Leu 1130 1135 1140		
	Thr Ala Phe Val Leu Ile Ser Leu Gln Glu Ala Lys Asp Ile Cys 1145 1150 1155		
	Glu Glu Gln Val Asn Ser Leu Pro Gly Ser Ile Thr Lys Ala Gly 1160 1165 1170		



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5	Val	Ala	Ile	Ala	Gly	Tyr	Ala	Leu	Ala	Gln	Met	Gly	Arg	Leu	Lys
		1190					1195					1200			
10	Gly	Pro	Leu	Leu	Asn	Lys	Phe	Leu	Thr	Thr	Ala	Lys	Asp	Lys	Asn
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15	Arg	Trp	Glu	Asp	Pro	Gly	Lys	Gln	Leu	Tyr	Asn	Val	Glu	Ala	Thr
		1220					1225					1230			
20	Ser	Tyr	Ala	Leu	Leu	Ala	Leu	Leu	Gln	Leu	Lys	Asp	Phe	Asp	Phe
		1235					1240					1245			
25	Val	Pro	Pro	Val	Val	Arg	Trp	Leu	Asn	Glu	Gln	Arg	Tyr	Tyr	Gly
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30	Gly	Gly	Tyr	Gly	Ser	Thr	Gln	Ala	Thr	Phe	Met	Val	Phe	Gln	Ala
		1265					1270					1275			
35	Leu	Ala	Gln	Tyr	Gln	Lys	Asp	Ala	Pro	Asp	His	Gln	Glu	Leu	Asn
		1280					1285					1290			
40	Leu	Asp	Val	Ser	Leu	Gln	Leu	Pro	Ser	Arg	Ser	Ser	Lys	Ile	Thr
		1295					1300					1305			
45	His	Arg	Ile	His	Trp	Glu	Ser	Ala	Ser	Leu	Leu	Arg	Ser	Glu	Glu
		1310					1315					1320			
50	Thr	Lys	Glu	Asn	Glu	Gly	Phe	Thr	Val	Thr	Ala	Glu	Gly	Lys	Gly
		1325					1330					1335			
55	Gln	Gly	Thr	Leu	Ser	Val	Val	Thr	Met	Tyr	His	Ala	Lys	Ala	Lys
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60	Asp	Gln	Leu	Thr	Cys	Asn	Lys	Phe	Asp	Leu	Lys	Val	Thr	Ile	Lys
		1355					1360					1365			
65	Pro	Ala	Pro	Glu	Thr	Glu	Lys	Arg	Pro	Gln	Asp	Ala	Lys	Asn	Thr
		1370					1375					1380			
70	Met	Ile	Leu	Glu	Ile	Cys	Thr	Arg	Tyr	Arg	Gly	Asp	Gln	Asp	Ala
		1385					1390					1395			
75	Thr	Met	Ser	Ile	Leu	Asp	Ile	Ser	Met	Met	Thr	Gly	Phe	Ala	Pro
		1400					1405					1410			
80	Asp	Thr	Asp	Asp	Leu	Lys	Gln	Leu	Ala	Asn	Gly	Val	Asp	Arg	Tyr
		1415					1420					1425			
85	Ile	Ser	Lys	Tyr	Glu	Leu	Asp	Lys	Ala	Phe	Ser	Asp	Arg	Asn	Thr

	1430		1435		1440
5	Leu Ile Ile Tyr Leu Asp	Lys Val Ser His Ser	Glu Asp Asp Cys		
	1445	1450	1455		
10	Leu Ala Phe Lys Val His	Gln Tyr Phe Asn Val	Glu Leu Ile Gln		
	1460	1465	1470		
15	Pro Gly Ala Val Lys Val	Tyr Ala Tyr Tyr Asn	Leu Glu Glu Ser		
	1475	1480	1485		
20	Cys Thr Arg Phe Tyr His	Pro Glu Lys Glu Asp	Gly Lys Leu Asn		
	1490	1495	1500		
25	Lys Leu Cys Arg Asp Glu	Leu Cys Arg Cys Ala	Glu Glu Asn Cys		
	1505	1510	1515		
30	Phe Ile Gln Lys Ser Asp	Asp Lys Val Thr Leu	Glu Glu Arg Leu		
	1520	1525	1530		
35	Asp Lys Ala Cys Glu Pro	Gly Val Asp Tyr Val	Tyr Lys Thr Arg		
	1535	1540	1545		
40	Leu Val Lys Val Gln Leu	Ser Asn Asp Phe Asp	Glu Tyr Ile Met		
	1550	1555	1560		
45	Ala Ile Glu Gln Thr Ile	Lys Ser Gly Ser Asp	Glu Val Gln Val		
	1565	1570	1575		
50	Gly Gln Gln Arg Thr Phe	Ile Ser Pro Ile Lys	Cys Arg Glu Ala		
	1580	1585	1590		
55	Leu Lys Leu Glu Glu Lys	Lys His Tyr Leu Met	Trp Gly Leu Ser		
	1595	1600	1605		
60	Ser Asp Phe Trp Gly Glu	Lys Pro Asn Leu Ser	Tyr Ile Ile Gly		
	1610	1615	1620		
65	Lys Asp Thr Trp Val Glu	His Trp Pro Glu Glu	Asp Glu Cys Gln		
	1625	1630	1635		
70	Asp Glu Glu Asn Gln Lys	Gln Cys Gln Asp Leu	Gly Ala Phe Thr		
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75	Glu Ser Met Val Val Phe	Gly Cys Pro Asn			
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Ile Lys Ser Gln Gln Ser Glu Val Thr Arg Ile Leu Asp Gly Lys Arg  
 20 25 30

15

Ile Gln Tyr Gln Leu Val Asp Ile Ser Gln Asp Asn Ala Leu Arg Asp  
 35 40 45

20

Glu Met Arg Ala Leu Ala Gly Asn Pro Lys Ala Thr Pro Pro Gln Ile  
 50 55 60

Val Asn Gly Asp Gln Tyr Cys Gly Asp Tyr Glu Leu Phe Val Glu Ala  
 65 70 75 80

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Val Glu Gln Asn Thr Leu Gln Glu Phe Leu Lys Leu Ala  
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Ser Leu Val Ala Ser Gln Asp Trp Lys Ala Glu Arg Ser Gln Asp Pro  
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50

Phe Glu Lys Cys Met Gln Asp Pro Asp Tyr Glu Gln Leu Leu Lys Val  
 35 40 45

55

Val Thr Trp Gly Leu Asn Arg Thr Leu Lys Pro Gln Arg Val Ile Val  
 50 55 60

60

Val Gly Ala Gly Val Ala Gly Leu Val Ala Ala Lys Val Leu Ser Asp  
 65 70 75 80

Ala Gly His Lys Val Thr Ile Leu Glu Ala Asp Asn Arg Ile Gly Gly  
 85 90 95

65

Arg Ile Phe Thr Tyr Arg Asp Gln Asn Thr Gly Trp Ile Gly Glu Leu  
 100 105 110

70

Gly Ala Met Arg Met Pro Ser Ser His Arg Ile Leu His Lys Leu Cys

	115	120	125	
5	Gln Gly 130	Leu Gly Leu Asn 135	Thr Lys Phe Thr Gln Tyr Asp Lys Asn 140	
10	Thr Trp Thr Glu Val His Glu Val Lys Leu Arg Asn Tyr Val Val Glu 145 150 155 160			
	Lys Val Pro Glu Lys Leu Gly Tyr Ala Leu Arg Pro Gln Glu Lys Gly 165 170 175			
15	His Ser Pro Glu Asp Ile Tyr Gln Met Ala Leu Asn Gln Ala Leu Lys 180 185 190			
20	Asp Leu Lys Ala Leu Gly Cys Arg Lys Ala Met Lys Lys Phe Glu Arg 195 200 205			
25	His Thr Leu Leu Glu Tyr Leu Leu Gly Glu Gly Asn Leu Ser Arg Pro 210 215 220			
30	Ala Val Gln Leu Leu Gly Asp Val Met Ser Glu Asp Gly Phe Phe Tyr 225 230 235 240			
	Leu Ser Phe Ala Glu Ala Leu Arg Ala His Ser Cys Leu Ser Asp Arg 245 250 255			
35	Leu Gln Tyr Ser Arg Ile Val Gly Gly Trp Asp Leu Leu Pro Arg Ala 260 265 270			
40	Leu Leu Ser Ser Leu Ser Gly Leu Val Leu Leu Asn Ala Pro Val Val 275 280 285			
45	Ala Met Thr Gln Gly Pro His Asp Val His Val Gln Ile Glu Thr Ser 290 295 300			
50	Pro Pro Ala Arg Asn Leu Lys Val Leu Lys Ala Asp Val Val Leu Leu 305 310 315 320			
	Thr Ala Ser Gly Pro Ala Val Lys Arg Ile Thr Phe Ser Pro Pro Leu 325 330 335			
55	Pro Arg His Met Gln Glu Ala Leu Arg Arg Leu His Tyr Val Pro Ala 340 345 350			
60	Thr Lys Val Phe Leu Ser Phe Arg Arg Pro Phe Trp Arg Glu Glu His 355 360 365			
65	Ile Glu Gly Gly His Ser Asn Thr Asp Arg Pro Ser Arg Met Ile Phe 370 375 380			
70	Tyr Pro Pro Pro Arg Glu Gly Ala Leu Leu Leu Ala Ser Tyr Thr Trp 385 390 395 400			

Ser Asp Ala Ala Ala Phe Ala Gly Leu Ser Arg Glu Glu Ala Leu  
 405 410 415  
 5 Arg Leu Ala Leu Asp Asp Val Ala Ala Leu His Gly Pro Val Val Arg  
 420 425 430  
 10 Gln Leu Trp Asp Gly Thr Gly Val Val Lys Arg Trp Ala Glu Asp Gln  
 435 440 445  
 15 His Ser Gln Gly Gly Phe Val Val Gln Pro Pro Ala Leu Trp Gln Thr  
 450 455 460  
 20 Glu Lys Asp Asp Trp Thr Val Pro Tyr Gly Arg Ile Tyr Phe Ala Gly  
 465 470 475 480  
 Glu His Thr Ala Tyr Pro His Gly Trp Val Glu Thr Ala Val Lys Ser  
 485 490 495  
 25 Ala Leu Arg Ala Ala Ile Lys Ile Asn Ser Arg Lys Gly Pro Ala Ser  
 500 505 510  
 30 Asp Thr Ala Ser Pro Glu Gly His Ala Ser Asp Met Glu Gly Gln Gly  
 515 520 525  
 35 His Val His Gly Val Ala Ser Ser Pro Ser His Asp Leu Ala Lys Glu  
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 Thr His Thr Arg Thr Ser His  
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 60 Cys Trp Ser Leu Ala Ile Ala Thr Pro Leu Pro Pro Thr Ser Ala His  
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 65 Gly Asn Val Ala Glu Gly Glu Thr Lys Pro Asp Pro Asp Val Thr Glu  
 35 40 45  
 70 Arg Cys Ser Asp Gly Trp Ser Phe Asp Ala Thr Thr Leu Asp Asp Asn

	50		55		60
5	Gly Thr Met Leu Phe Phe Lys Gly Glu Phe Val Trp Lys Ser His Lys	65	70	75	80
10	Trp Asp Arg Glu Leu Ile Ser Glu Arg Trp Lys Asn Phe Pro Ser Pro	85	90	95	
15	Val Asp Ala Ala Phe Arg Gln Gly His Asn Ser Val Phe Leu Ile Lys	100	105	110	
20	Gly Asp Lys Val Trp Val Tyr Pro Pro Glu Lys Lys Glu Lys Gly Tyr	115	120	125	
25	Pro Lys Leu Leu Gln Asp Glu Phe Pro Gly Ile Pro Ser Pro Leu Asp	130	135	140	
30	Ala Ala Val Glu Cys His Arg Gly Glu Cys Gln Ala Glu Gly Val Leu	145	150	155	160
35	Phe Phe Gln Gly Asp Arg Glu Trp Phe Trp Asp Leu Ala Thr Gly Thr	165	170	175	
40	Met Lys Glu Arg Ser Trp Pro Ala Val Gly Asn Cys Ser Ser Ala Leu	180	185	190	
45	Arg Trp Leu Gly Arg Tyr Tyr Cys Phe Gln Gly Asn Gln Phe Leu Arg	195	200	205	
50	Phe Asp Pro Val Arg Gly Glu Val Pro Pro Arg Tyr Pro Arg Asp Val	210	215	220	
55	Arg Asp Tyr Phe Met Pro Cys Pro Gly Arg Gly His Gly His Arg Asn	225	230	235	240
60	Gly Thr Gly His Gly Asn Ser Thr His His Gly Pro Glu Tyr Met Arg	245	250	255	
65	Cys Ser Pro His Leu Val Leu Ser Ala Leu Thr Ser Asp Asn His Gly	260	265	270	
70	Ala Thr Tyr Ala Phe Ser Gly Thr His Tyr Trp Arg Leu Asp Thr Ser	275	280	285	
	Arg Asp Gly Trp His Ser Trp Pro Ile Ala His Gln Trp Pro Gln Gly	290	295	300	
	Pro Ser Ala Val Asp Ala Ala Phe Ser Trp Glu Glu Lys Leu Tyr Leu	305	310	315	320
	Val Gln Gly Thr Gln Val Tyr Val Phe Leu Thr Lys Gly Gly Tyr Thr	325	330	335	

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 10  
 15  
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 25  
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 65  
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Leu Val Ser Gly Tyr Pro Lys Arg Leu Glu Lys Glu Val Gly Thr Pro  
 340 345 350  
 His Gly Ile Ile Leu Asp Ser Val Asp Ala Ala Phe Ile Cys Pro Gly  
 355 360 365  
 Ser Ser Arg Leu His Ile Met Ala Gly Arg Arg Leu Trp Trp Leu Asp  
 370 375 380  
 Leu Lys Ser Gly Ala Gln Ala Thr Trp Thr Glu Leu Pro Trp Pro His  
 385 390 395 400  
 Glu Lys Val Asp Gly Ala Leu Cys Met Glu Lys Ser Leu Gly Pro Asn  
 405 410 415  
 Ser Cys Ser Ala Asn Gly Pro Gly Leu Tyr Leu Ile His Gly Pro Asn  
 420 425 430  
 Leu Tyr Cys Tyr Ser Asp Val Glu Lys Leu Asn Ala Ala Lys Ala Leu  
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 Lys Gln Asp Pro Ser Val Leu His Thr Glu Glu Met Arg Phe Leu Arg  
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 35 40 45  
 Ala Lys Ser Glu Glu Asn Thr Lys Glu Glu Lys Pro Asp Ser Lys Lys  
 50 55 60  
 Val Glu Glu Asp Leu Lys Ala Asp Glu Pro Ser Ser Glu Glu Ser Asp  
 65 70 75 80  
 Leu Glu Ile Asp Lys Glu Gly Val Ile Glu Pro Asp Thr Asp Ala Pro  
 85 90 95  
 Gln Glu Met Gly Asp Glu Asn Ala Glu Ile Thr Glu Glu Met Met Asp

	100	105	110
5	Gln Ala Asn Asp Lys Lys Val	Ala Ala Ile Glu Ala	Leu Asn Asp Gly
	115	120	125
10	Glu Leu Gln Lys Ala Ile Asp	Leu Phe Thr Asp	Ala Ile Lys Leu Asn
	130	135	140
15	Pro Arg Leu Ala Ile Leu Tyr Ala Lys Arg	Ala Ser Val Phe Val	Lys
	145	150	155 160
20	Leu Gln Lys Pro Asn Ala Ala Ile Arg	Asp Cys Asp Arg Ala	Ile Glu
	165	170	175
25	Ile Asn Pro Asp Ser Ala Gln Pro Tyr Lys Trp Arg Gly	Lys Ala His	
	180	185	190
30	Arg Leu Leu Gly His Trp Glu Glu Ala Ala His Asp	Leu Ala Leu Ala	
	195	200	205
35	Cys Lys Leu Asp Tyr Asp Glu Asp Ala Ser Ala Met	Leu Lys Glu Val	
	210	215	220
40	Gln Pro Arg Ala Gln Lys Ile Ala Glu His Arg Arg Lys Tyr Glu	Arg	
	225	230	235 240
45	Lys Arg Glu Glu Arg Glu Ile Lys Glu Arg Ile Glu Arg Val	Lys Lys	
	245	250	255
50	Ala Arg Glu Glu His Glu Arg Ala Gln Arg Glu Glu Glu	Ala Arg Arg	
	260	265	270
55	Gln Ser Gly Ala Gln Tyr Gly Ser Phe Pro Gly Gly Phe	Pro Gly Gly	
	275	280	285
60	Met Pro Gly Asn Phe Pro Gly Gly Met Pro Gly Met	Gly Gly Gly Met	
	290	295	300
65	Pro Gly Met Ala Gly Met Pro Gly Leu Asn Glu Ile Leu Ser Asp	Pro	
	305	310	315 320
70	Glu Val Leu Ala Ala Met Gln Asp Pro Glu Val Met Val Ala Phe Gln		
	325	330	335
75	Asp Val Ala Gln Asn Pro Ala Asn Met Ser Lys Tyr Gln Ser Asn Pro		
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80	Lys Val Met Asn Leu Ile Ser Lys Leu Ser Ala Lys Phe Gly Gly Gln		
	355	360	365
85	Ala		



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55 Thr Tyr Glu  
  
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Asp

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 Tyr Pro Glu Gln Leu Lys Met Thr Val Val Lys Leu Ile Ser His Arg  
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 Lys Asn Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr  
 1 5 10 15

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 Gly Pro Asn Asn Tyr Tyr Ser Phe Ala Ser Gln Gln Gln Lys Pro  
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 Gly Pro Asn Asn Tyr Tyr Ser Phe Ala Ser Gln Gln Gln Lys Pro Glu  
 1 5 10 15

## Asp

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Gly Pro Asn Asn Tyr Tyr Ser Phe Ala Ser Gln Gln Gln Lys Pro Glu  
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## Asp Thr

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Glu Lys Leu Trp Phe Val Pro Ala Lys Val Glu Asp Ser Gly His Tyr  
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Ser Leu Arg Glu Leu His Leu Asp His Asn Gln Ile Ser Arg  
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&lt;400&gt; 70

Leu Arg Glu Leu His Leu Asp His Asn Gln Ile Ser Arg  
 1 5 10

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<210> 71  
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&lt;400&gt; 71

Glu Thr Met Lys Met Arg Tyr Glu His Ile Asp His Thr Phe Glu  
 1 5 10 15

60

65

<210> 72  
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&lt;400&gt; 72

Glu Thr Met Lys Met Arg Tyr Glu His Ile Asp His Thr Phe Glu Ile  
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 5 Gln  
 10 <210> 73  
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 15 <400> 73  
 His Met Phe Leu Gln Asp Glu Ile Ile Asp Lys Ser Tyr Thr Pro Ser  
 1 5 10 15  
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 Val Asp Arg Tyr Ile Ser Lys Tyr Glu Leu Asp Lys Ala Phe Ser Asp  
 1 5 10 15  
 30 Arg  
 35 <210> 75  
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 Arg Tyr Ile Ser Lys Tyr Glu Leu Asp Lys Ala Phe Ser Asp  
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 1 5 10 15  
 55 Ile Pro Val  
 60 <210> 77  
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Ile Pro Val Lys  
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Gly Thr Pro His Gly Ile Ile Leu Asp Ser Val Asp Ala Ala Phe Ile  
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Cys Pro

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Gln Gly

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40 <213> Homo sapiens  
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Met Ala Thr Pro Leu Leu Met Gln Ala Leu Pro Met Gly Ala Leu Pro  
1 5 10 15

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Gln

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<210> 81  
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<400> 81

Met Ala Thr Pro Leu Leu Met Gln Ala Leu Pro Met Gly Ala Leu Pro  
1 5 10 15

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<210> 82  
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70 Met Ala Thr Pro Leu Leu Met Gln Ala Leu Pro Met Gly Ala Leu Pro

1 5 10 15

5 Gln Gly Pro Met Gln  
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10 <210> 83  
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15 Ala Thr Pro Leu Leu Met Gln Ala Leu Pro Met Gly Ala Leu Pro  
1 5 10 15

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25 His Pro Pro Val Gln Trp Ala Phe Gln Glu Thr Ser Val Glu Ser Ala  
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30 Val Asp Thr Pro Phe Pro Ala  
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45 Val Asp Thr Pro Phe Pro Ala Gly  
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1 5 10 15

60 Val Asp Thr Pro Phe Pro  
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Lys Ile Tyr Leu Tyr Thr Leu Asn Asp Asn Ala Arg Ser Ser Pro Val  
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 5 Val  
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 5 Cys Arg Glu<sub>35</sub> Cys Ile Glu Ser Gly<sub>40</sub> Pro Gly Cys Thr Trp<sub>45</sub> Cys Gln Lys  
 10 Leu Asn Phe Thr Gly Pro Gly<sub>55</sub> Asp Pro Asp Ser Ile<sub>60</sub> Arg Cys Asp Thr  
 15 Arg Pro Gln Leu Leu Met<sub>70</sub> Arg Gly Cys Ala Ala<sub>75</sub> Asp Asp Ile Met Asp<sub>80</sub>  
 20 Pro Thr Ser Leu Ala<sub>85</sub> Glu Thr Gln Glu Asp<sub>90</sub> His Asn Gly Gly<sub>95</sub> Gln Lys  
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 30 Leu Tyr<sub>130</sub> Tyr Leu Met Asp Leu<sub>135</sub> Ser Tyr Ser Met Leu<sub>140</sub> Asp Asp Leu Arg  
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 Gly Lys Leu<sub>275</sub> Gly Ala Ile Leu Thr<sub>280</sub> Pro Asn Asp Gly Arg<sub>285</sub> Cys His Leu  
 70 Glu Asp Asn Leu Tyr Lys Arg Ser Asn Glu Phe Asp Tyr Pro Ser Val

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10	Ala	Val	Thr	Ser	Arg 325	Met	Val	Lys	Thr	Tyr 330	Glu	Lys	Leu	Thr	Glu 335	Ile
15	Ile	Pro	Lys	Ser 340	Ala	Val	Gly	Glu	Leu 345	Ser	Glu	Asp	Ser	Ser 350	Asn	Val
20	Val	His	Leu 355	Ile	Lys	Asn	Ala	Tyr 360	Asn	Lys	Leu	Ser	Ser 365	Arg	Val	Phe
25	Leu	Asp 370	His	Asn	Ala	Leu	Pro 375	Asp	Thr	Leu	Lys	Val 380	Thr	Tyr	Asp	Ser
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35	Asp	Gly	Val	Gln	Ile 405	Asn	Val	Pro	Ile	Thr 410	Phe	Gln	Val	Lys	Val 415	Thr
40	Ala	Thr	Glu	Cys 420	Ile	Gln	Glu	Gln	Ser 425	Phe	Val	Ile	Arg	Ala 430	Leu	Gly
45	Phe	Thr	Asp 435	Ile	Val	Thr	Val	Gln 440	Val	Leu	Pro	Gln	Cys 445	Glu	Cys	Arg
50	Cys	Arg 450	Asp	Gln	Ser	Arg	Asp 455	Arg	Ser	Leu	Cys	His 460	Gly	Lys	Gly	Phe
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65	Cys	Arg	Lys	Asp 500	Asn	Asn	Ser	Ile	Ile 505	Cys	Ser	Gly	Leu	Gly 510	Asp	Cys
70	Val	Cys	Gly 515	Gln	Cys	Leu	Cys	His 520	Thr	Ser	Asp	Val	Pro 525	Gly	Lys	Leu
	Ile	Tyr 530	Gly	Gln	Tyr	Cys	Glu 535	Cys	Asp	Thr	Ile	Asn 540	Cys	Glu	Arg	Tyr
	Asn	Gly	Gln	Val	Cys	Gly 550	Gly	Pro	Gly	Arg	Gly 555	Leu	Cys	Phe	Cys	Gly 560
	Lys	Cys	Arg	Cys	His 565	Pro	Gly	Phe	Glu	Gly 570	Ser	Ala	Cys	Gln	Cys 575	Glu

Arg Thr Thr Glu Gly Cys Leu Asn Pro Arg Arg Val Glu Cys Ser Gly  
 580 585 590  
 5 Arg Gly Arg Cys Arg Cys Asn Val Cys Glu Cys His Ser Gly Tyr Gln  
 595 600 605  
 10 Leu Pro Leu Cys Gln Glu Cys Pro Gly Cys Pro Ser Pro Cys Gly Lys  
 610 615 620  
 15 Tyr Ile Ser Cys Ala Glu Cys Leu Lys Phe Glu Lys Gly Pro Phe Gly  
 625 630 635 640  
 20 Lys Asn Cys Ser Ala Ala Cys Pro Gly Leu Gln Leu Ser Asn Asn Pro  
 645 650 655  
 25 Val Lys Gly Arg Thr Cys Lys Glu Arg Asp Ser Glu Gly Cys Trp Val  
 660 665 670  
 30 Ala Tyr Thr Leu Glu Gln Gln Asp Gly Met Asp Arg Tyr Leu Ile Tyr  
 675 680 685  
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 690 695 700  
 40 Val Gly Gly Thr Val Ala Gly Ile Val Leu Ile Gly Ile Leu Leu Leu  
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 50 Arg Phe Glu Lys Glu Lys Leu Lys Ser Gln Trp Asn Asn Asp Asn Pro  
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5	Asp Phe Leu Leu Pro Thr Gly	Ile Tyr Ile Gln Leu Glu	Val Pro Arg	
	35	40	45	
10	Glu Ala Thr Ile Ser Tyr Ile	Lys Gln Met Leu Trp Lys	Gln Val His	
	50	55	60	
15	Asn Tyr Pro Met Phe Asn Leu Leu Met Asp	Ile Asp Ser Tyr Met Phe		
	65	70	75	80
20	Ala Cys Val Asn Gln Thr Ala Val Tyr	Glu Glu Leu Glu Asp	Glu Thr	
	85	90	95	
25	Arg Arg Leu Cys Asp Val Arg Pro Phe	Leu Pro Val Leu Lys	Leu Val	
	100	105	110	
30	Thr Arg Ser Cys Asp Pro Gly Glu	Lys Leu Asp Ser Lys	Ile Gly Val	
	115	120	125	
35	Leu Ile Gly Lys Gly Leu His	Glu Phe Asp Ser Leu Lys	Asp Pro Glu	
	130	135	140	
40	Val Asn Glu Phe Arg Arg Lys Met Arg Lys	Phe Ser Glu Glu Lys	Ile	
	145	150	155	160
45	Leu Ser Leu Val Gly Leu Ser Trp Met	Asp Trp Leu Lys Gln Thr	Tyr	
	165	170	175	
50	Pro Pro Glu His Glu Pro Ser Ile	Pro Glu Asn Leu Glu Asp	Lys Leu	
	180	185	190	
55	Tyr Gly Gly Lys Leu Ile Val Ala Val His	Phe Glu Asn Cys Gln Asp		
	195	200	205	
60	Val Phe Ser Phe Gln Val Ser Pro Asn Met	Asn Pro Ile Lys Val Asn		
	210	215	220	
65	Glu Leu Ala Ile Gln Lys Arg Leu Thr Ile	His Gly Lys Glu Asp Glu		
	225	230	235	240
70	Val Ser Pro Tyr Asp Tyr Val Leu Gln Val	Ser Gly Arg Val Glu Tyr		
	245	250	255	
75	Val Phe Gly Asp His Pro Leu Ile Gln	Phe Gln Tyr Ile Arg Asn Cys		
	260	265	270	
80	Val Met Asn Arg Ala Leu Pro His Phe Ile	Leu Val Glu Cys Cys Lys		
	275	280	285	
85	Ile Lys Lys Met Tyr Glu Gln Glu Met Ile	Ala Ile Glu Ala Ala Ile		
	290	295	300	

Asn Arg Asn Ser Ser Asn Leu Pro Leu Pro Leu Pro Pro Lys Lys Thr  
 305 310 315 320  
 5 Arg Ile Ile Ser His Val Trp Glu Asn Asn Asn Pro Phe Gln Ile Val  
 325 330 335  
 10 Leu Val Lys Gly Asn Lys Leu Asn Thr Glu Glu Thr Val Lys Val His  
 340 345 350  
 15 Val Arg Ala Gly Leu Phe His Gly Thr Glu Leu Leu Cys Lys Thr Ile  
 355 360 365  
 20 Val Ser Ser Glu Val Ser Gly Lys Asn Asp His Ile Trp Asn Glu Pro  
 370 375 380  
 25 Leu Glu Phe Asp Ile Asn Ile Cys Asp Leu Pro Arg Met Ala Arg Leu  
 385 390 395 400  
 30 Cys Phe Ala Val Tyr Ala Val Leu Asp Lys Val Lys Thr Lys Lys Ser  
 405 410 415  
 35 Thr Lys Thr Ile Asn Pro Ser Lys Tyr Gln Thr Ile Arg Lys Ala Gly  
 420 425 430  
 40 Lys Val His Tyr Pro Val Ala Trp Val Asn Thr Met Val Phe Asp Phe  
 435 440 445  
 45 Lys Gly Gln Leu Arg Thr Gly Asp Ile Ile Leu His Ser Trp Ser Ser  
 450 455 460  
 50 Phe Pro Asp Glu Leu Glu Glu Met Leu Asn Pro Met Gly Thr Val Gln  
 465 470 475 480  
 55 Thr Asn Pro Tyr Thr Glu Asn Ala Thr Ala Leu His Val Lys Phe Pro  
 485 490 495  
 60 Glu Asn Lys Lys Gln Pro Tyr Tyr Tyr Pro Pro Phe Asp Lys Ile Ile  
 500 505 510  
 65 Glu Lys Ala Ala Glu Ile Ala Ser Ser Asp Ser Ala Asn Val Ser Ser  
 515 520 525  
 70 Arg Gly Gly Lys Lys Phe Leu Pro Val Leu Lys Glu Ile Leu Asp Arg  
 530 535 540  
 Asp Pro Leu Ser Gln Leu Cys Glu Asn Glu Met Asp Leu Ile Trp Thr  
 545 550 555 560  
 Leu Arg Gln Asp Cys Arg Glu Ile Phe Pro Gln Ser Leu Pro Lys Leu  
 565 570 575  
 Leu Leu Ser Ile Lys Trp Asn Lys Leu Glu Asp Val Ala Gln Leu Gln

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5	Ala Leu Leu Gln Ile Trp Pro Lys Leu Pro Pro Arg Glu Ala Leu Glu	595	600	605
10	Leu Leu Asp Phe Asn Tyr Pro Asp Gln Tyr Val Arg Glu Tyr Ala Val	610	615	620
15	Gly Cys Leu Arg Gln Met Ser Asp Glu Glu Leu Ser Gln Tyr Leu Leu	625	630	635
20	Gln Leu Val Gln Val Leu Lys Tyr Glu Pro Phe Leu Asp Cys Ala Leu	645	650	655
25	Ser Arg Phe Leu Leu Glu Arg Ala Leu Gly Asn Arg Arg Ile Gly Gln	660	665	670
30	Phe Leu Phe Trp His Leu Arg Ser Glu Val His Ile Pro Ala Val Ser	675	680	685
35	Val Gln Phe Gly Val Ile Leu Glu Ala Tyr Cys Arg Gly Ser Val Gly	690	695	700
40	His Met Lys Val Leu Ser Lys Gln Val Glu Ala Leu Asn Lys Leu Lys	705	710	715
45	Thr Leu Asn Ser Leu Ile Lys Leu Asn Ala Val Lys Leu Asn Arg Ala	725	730	735
50	Lys Gly Lys Glu Ala Met His Thr Cys Leu Lys Gln Ser Ala Tyr Arg	740	745	750
55	Glu Ala Leu Ser Asp Leu Gln Ser Pro Leu Asn Pro Cys Val Ile Leu	755	760	765
60	Ser Glu Leu Tyr Val Glu Lys Cys Lys Tyr Met Asp Ser Lys Met Lys	770	775	780
65	Pro Leu Trp Leu Val Tyr Asn Asn Lys Val Phe Gly Glu Asp Ser Val	785	790	795
70	Gly Val Ile Phe Lys Asn Gly Asp Asp Leu Arg Gln Asp Met Leu Thr	805	810	815
75	Leu Gln Met Leu Arg Leu Met Asp Leu Leu Trp Lys Glu Ala Gly Leu	820	825	830
80	Asp Leu Arg Met Leu Pro Tyr Gly Cys Leu Ala Thr Gly Asp Arg Ser	835	840	845
85	Gly Leu Ile Glu Val Val Ser Thr Ser Glu Thr Ile Ala Asp Ile Gln	850	855	860

Leu Asn Ser Ser Asn Val Ala Ala Ala Ala Ala Phe Asn Lys Asp Ala  
 865 870 875 880  
 5 Leu Leu Asn Trp Leu Lys Glu Tyr Asn Ser Gly Asp Asp Leu Asp Arg  
 885 890 895  
 10 Ala Ile Glu Glu Phe Thr Leu Ser Cys Ala Gly Tyr Cys Val Ala Ser  
 900 905 910  
 15 Tyr Val Leu Gly Ile Gly Asp Arg His Ser Asp Asn Ile Met Val Lys  
 915 920 925  
 20 Lys Thr Gly Gln Leu Phe His Ile Asp Phe Gly His Ile Leu Gly Asn  
 930 935 940  
 Phe Lys Ser Lys Phe Gly Ile Lys Arg Glu Arg Val Pro Phe Ile Leu  
 945 950 955 960  
 25 Thr Tyr Asp Phe Ile His Val Ile Gln Gln Gly Lys Thr Gly Asn Thr  
 965 970 975  
 30 Glu Lys Phe Gly Arg Phe Arg Gln Cys Cys Glu Asp Ala Tyr Leu Ile  
 980 985 990  
 35 Leu Arg Arg His Gly Asn Leu Phe Ile Thr Leu Phe Ala Leu Met Leu  
 995 1000 1005  
 40 Thr Ala Gly Leu Pro Glu Leu Thr Ser Val Lys Asp Ile Gln Tyr  
 1010 1015 1020  
 Leu Lys Asp Ser Leu Ala Leu Gly Lys Ser Glu Glu Glu Ala Leu  
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 45 Lys Gln Phe Lys Gln Lys Phe Asp Glu Ala Leu Arg Glu Ser Trp  
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10	Cys Leu Asn Gly Gly Thr Cys Val	Ser Asn Lys Tyr Phe	Ser Asn Ile	
		35	40	45
15	His Trp Cys Asn Cys Pro Lys Lys Phe Gly Gly Gln His Cys Glu Ile			
		50	55	60
20	Asp Lys Ser Lys Thr Cys Tyr Glu Gly Asn Gly His Phe Tyr Arg Gly			
		65	70	75
25	Lys Ala Ser Thr Asp Thr Met Gly Arg Pro Cys Leu Pro Trp Asn Ser			
		85	90	95
30	Ala Thr Val Leu Gln Gln Thr Tyr His Ala His Arg Ser Asp Ala Leu			
		100	105	110
35	Gln Leu Gly Leu Gly Lys His Asn Tyr Cys Arg Asn Pro Asp Asn Arg			
		115	120	125
40	Arg Arg Pro Trp Cys Tyr Val Gln Val Gly Leu Lys Pro Leu Val Gln			
		130	135	140
45	Glu Cys Met Val His Asp Cys Ala Asp Gly Lys Lys Pro Ser Ser Pro			
		145	150	155
50	Pro Glu Glu Leu Lys Phe Gln Cys Gly Gln Lys Thr Leu Arg Pro Arg			
		165	170	175
55	Phe Lys Ile Ile Gly Gly Glu Phe Thr Thr Ile Glu Asn Gln Pro Trp			
		180	185	190
60	Phe Ala Ala Ile Tyr Arg Arg His Arg Gly Gly Ser Val Thr Tyr Val			
		195	200	205
65	Cys Gly Gly Ser Leu Met Ser Pro Cys Trp Val Ile Ser Ala Thr His			
		210	215	220
70	Cys Phe Ile Asp Tyr Pro Lys Lys Glu Asp Tyr Ile Val Tyr Leu Gly			
		225	230	235
75	Arg Ser Arg Leu Asn Ser Asn Thr Gln Gly Glu Met Lys Phe Glu Val			
		245	250	255
80	Glu Asn Leu Ile Leu His Lys Asp Tyr Ser Ala Asp Thr Leu Ala His			
		260	265	270
85	His Asn Asp Ile Ala Leu Leu Lys Ile Arg Ser Lys Glu Gly Arg Cys			
		275	280	285

Ala Gln Pro Ser Arg Thr Ile Gln Thr Ile Cys Leu Pro Ser Met Tyr  
 290 295 300  
 5 Asn Asp Pro Gln Phe Gly Thr Ser Cys Glu Ile Thr Gly Phe Gly Lys  
 305 310 315 320  
 10 Glu Asn Ser Thr Asp Tyr Leu Tyr Pro Glu Gln Leu Lys Met Thr Val  
 325 330 335  
 15 Val Lys Leu Ile Ser His Arg Glu Cys Gln Gln Pro His Tyr Tyr Gly  
 340 345 350  
 20 Ser Glu Val Thr Thr Lys Met Leu Cys Ala Ala Asp Pro Gln Trp Lys  
 355 360 365  
 25 Thr Asp Ser Cys Gln Gly Asp Ser Gly Gly Pro Leu Val Cys Ser Leu  
 370 375 380  
 30 Gln Gly Arg Met Thr Leu Thr Gly Ile Val Ser Trp Gly Arg Gly Cys  
 385 390 395 400  
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 65 Ser Ser Tyr Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu  
 50 55 60  
 70 Glu Trp Val Ser Ala Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Gly  
 65 70 75 80  
 Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn

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5	Thr Leu Tyr	Leu Gln Met Asn Ser	Leu Arg Ala Glu Asp	Thr Ala Val		
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		20	25	30		
35	Val Thr Val Ala Gly Leu Ala Gly Lys Asp Pro Val Gln Cys Ser Arg					
		35	40	45		
40	Asp Val Val Ile Cys Pro Asp Ala Ser Leu Glu Asp Ala Lys Lys Glu					
		50	55	60		
45	Gly Pro Tyr Asp Val Val Val Leu Pro Gly Gly Asn Leu Gly Ala Gln					
		65	70	75	80	
50	Asn Leu Ser Glu Ser Ala Ala Val Lys Glu Ile Leu Lys Glu Gln Glu					
		85	90	95		
55	Asn Arg Lys Gly Leu Ile Ala Ala Ile Cys Ala Gly Pro Thr Ala Leu					
		100	105	110		
60	Leu Ala His Glu Ile Gly Phe Gly Ser Lys Val Thr Thr His Pro Leu					
		115	120	125		
65	Ala Lys Asp Lys Met Met Asn Gly Gly His Tyr Thr Tyr Ser Glu Asn					
		130	135	140		
70	Arg Val Glu Lys Asp Gly Leu Ile Leu Thr Ser Arg Gly Pro Gly Thr					
		145	150	155	160	
	Ser Phe Glu Phe Ala Leu Ala Ile Val Glu Ala Leu Asn Gly Lys Glu					
		165	170	175		
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 Leu Asn Phe Leu Pro Thr Thr Gly Thr Lys Leu Thr Lys Gln Gln Leu  
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 Ile Leu Ala Arg Asp Ile Leu Glu Ile Gly Ala Gln Trp Ser Ile Leu  
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 Arg Lys Asp Ile Pro Ser Phe Glu Arg Tyr Met Ala Gln Leu Lys Cys  
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 Tyr Tyr Phe Asp Tyr Lys Glu Gln Leu Pro Glu Ser Ala Tyr Met His  
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 Gln Leu Leu Gly Leu Asn Leu Leu Phe Leu Leu Ser Gln Asn Arg Val  
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 Ala Glu Phe His Thr Glu Leu Glu Arg Leu Pro Ala Lys Asp Ile Gln  
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 Thr Asn Val Tyr Ile Lys His Pro Val Ser Leu Glu Gln Tyr Leu Met  
 130 135 140  
  
 Glu Gly Ser Tyr Asn Lys Val Phe Leu Ala Lys Gly Asn Ile Pro Ala  
 50 145 150 155 160  
  
 Glu Ser Tyr Thr Phe Phe Ile Asp Ile Leu Leu Asp Thr Ile Arg Asp  
 55 165 170 175  
  
 Glu Ile Ala Gly Cys Ile Glu Lys Ala Tyr Glu Lys Ile Leu Phe Thr  
 60 180 185 190  
  
 Glu Ala Thr Arg Ile Leu Phe Phe Asn Thr Pro Lys Lys Met Thr Asp  
 195 200 205  
  
 Tyr Ala Lys Lys Arg Gly Trp Val Leu Gly Pro Asn Asn Tyr Tyr Ser  
 65 210 215 220  
  
 Phe Ala Ser Gln Gln Gln Lys Pro Glu Asp Thr Thr Ile Pro Ser Thr  
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70

Asn Tyr Thr Cys His Ala Ser Tyr Thr Tyr Leu Gly Lys Gln Tyr Pro  
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 Ile Thr Arg Val Ile Glu Phe Ile Thr Leu Glu Glu Asn Lys Pro Thr  
 210 215 220  
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 Arg Pro Val Ile Val Ser Pro Ala Asn Glu Thr Met Glu Val Asp Leu  
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 Gly Ser Gln Ile Gln Leu Ile Cys Asn Val Thr Gly Gln Leu Ser Asp  
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 Ile Ala Tyr Trp Lys Trp Asn Gly Ser Val Ile Asp Glu Asp Asp Pro  
 260 265 270  
 Val Leu Gly Glu Asp Tyr Tyr Ser Val Glu Asn Pro Ala Asn Lys Arg  
 275 280 285  
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 Arg Ser Thr Leu Ile Thr Val Leu Asn Ile Ser Glu Ile Glu Ser Arg  
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 Phe Tyr Lys His Pro Phe Thr Cys Phe Ala Lys Asn Thr His Gly Ile  
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 Asp Ala Ala Tyr Ile Gln Leu Ile Tyr Pro Val Thr Asn Phe Gln Lys  
 325 330 335  
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 His Met Ile Gly Ile Cys Val Thr Leu Thr Val Ile Ile Val Cys Ser  
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 Val Phe Ile Tyr Lys Ile Phe Lys Ile Asp Ile Val Leu Trp Tyr Arg  
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 Asp Ser Cys Tyr Asp Phe Leu Pro Ile Lys Ala Ser Asp Gly Lys Thr  
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 Tyr Asp Ala Tyr Ile Leu Tyr Pro Lys Thr Val Gly Glu Gly Ser Thr  
 385 390 395 400  
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 Ser Asp Cys Asp Ile Phe Val Phe Lys Val Leu Pro Glu Val Leu Glu  
 405 410 415  
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 Lys Gln Cys Gly Tyr Lys Leu Phe Ile Tyr Gly Arg Asp Asp Tyr Val  
 420 425 430  
 Gly Glu Asp Ile Val Glu Val Ile Asn Glu Asn Val Lys Lys Ser Arg  
 435 440 445  
 65  
 Arg Leu Ile Ile Ile Leu Val Arg Glu Thr Ser Gly Phe Ser Trp Leu  
 450 455 460  
 70  
 Gly Gly Ser Ser Glu Glu Gln Ile Ala Met Tyr Asn Ala Leu Val Gln

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465                               470                               475                               480
5   Asp Gly Ile Lys Val Val Leu Leu Glu Leu Glu Lys Ile Gln Asp Tyr
    485                                490                                495

10  Glu Lys Met Pro Glu Ser Ile Lys Phe Ile Lys Gln Lys His Gly Ala
    500                                505                                510

15  Ile Arg Trp Ser Gly Asp Phe Thr Gln Gly Pro Gln Ser Ala Lys Thr
    515                                520                                525

20  Arg Phe Trp Lys Asn Val Arg Tyr His Met Pro Val Gln Arg Arg Ser
    530                                535                                540

25  Pro Ser Ser Lys His Gln Leu Leu Ser Pro Ala Thr Lys Glu Lys Leu
    545                                550                                555                                560

30  Gln Arg Glu Ala His Val Pro Leu Gly
    565

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<213> Homo sapiens

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40  Met Gln Trp Thr Ser Leu Leu Leu Leu Ala Gly Leu Phe Ser Leu Ser
    1      5      10      15

45  Gln Ala Gln Tyr Glu Asp Asp Pro His Trp Trp Phe His Tyr Leu Arg
    20      25      30

50  Ser Gln Gln Ser Thr Tyr Tyr Asp Pro Tyr Asp Pro Tyr Pro Tyr Glu
    35      40      45

55  Thr Tyr Glu Pro Tyr Pro Tyr Gly Val Asp Glu Gly Pro Ala Tyr Thr
    50      55      60

60  Tyr Gly Ser Pro Ser Pro Pro Asp Pro Arg Asp Cys Pro Gln Glu Cys
    65      70      75      80

65  Asp Cys Pro Pro Asn Phe Pro Thr Ala Met Tyr Cys Asp Asn Arg Asn
    85      90      95

70  Leu Lys Tyr Leu Pro Phe Val Pro Ser Arg Met Lys Tyr Val Tyr Phe
    100     105     110

    Gln Asn Asn Gln Ile Thr Ser Ile Gln Glu Gly Val Phe Asp Asn Ala
        115         120         125

```

Thr Gly Leu Leu Trp Ile Ala Leu His Gly Asn Gln Ile Thr Ser Asp  
 130 135 140  
 5 Lys Val Gly Arg Lys Val Phe Ser Lys Leu Arg His Leu Glu Arg Leu  
 145 150 155 160  
 10 Tyr Leu Asp His Asn Asn Leu Thr Arg Met Pro Gly Pro Leu Pro Arg  
 165 170 175  
 15 Ser Leu Arg Glu Leu His Leu Asp His Asn Gln Ile Ser Arg Val Pro  
 180 185 190  
 20 Asn Asn Ala Leu Glu Gly Leu Glu Asn Leu Thr Ala Leu Tyr Leu Gln  
 195 200 205  
 His Asn Glu Ile Gln Glu Val Gly Ser Ser Met Arg Gly Leu Arg Ser  
 210 215 220  
 25 Leu Tyr Leu Leu Asp Leu Ser Tyr Asn His Leu Arg Lys Val Pro Asp  
 225 230 235 240  
 30 Gly Leu Pro Ser Ala Leu Glu Gln Leu Tyr Met Glu His Asn Asn Val  
 245 250 255  
 35 Tyr Thr Val Pro Asp Ser Tyr Phe Arg Gly Ala Pro Lys Leu Leu Tyr  
 260 265 270  
 40 Val Arg Leu Ser His Asn Ser Leu Thr Asn Asn Gly Leu Ala Ser Asn  
 275 280 285  
 Thr Phe Asn Ser Ser Ser Leu Leu Glu Leu Asp Leu Ser Tyr Asn Gln  
 290 295 300  
 45 Leu Gln Lys Ile Pro Pro Val Asn Thr Asn Leu Glu Asn Leu Tyr Leu  
 305 310 315 320  
 50 Gln Gly Asn Arg Ile Asn Glu Phe Ser Ile Ser Ser Phe Cys Thr Val  
 325 330 335  
 55 Val Asp Val Val Asn Phe Ser Gln Leu Gln Val Val Arg Leu Asp Gly  
 340 345 350  
 60 Asn Glu Met Lys Arg Ser Ala Met Pro Ala Glu Ala Pro Leu Cys Leu  
 355 360 365  
 Arg Leu Ala Ser Leu Ile Glu Ile  
 370 375  
 65 <210> 131  
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Met Val Leu Ala Gln Gly Leu Leu Ser Met Ala Leu Leu Ala Leu Cys  
 1 5 10 15

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Trp Glu Arg Ser Leu Ala Gly Ala Glu Glu Thr Ile Pro Leu Gln Thr  
 20 25 30

15

Leu Arg Cys Tyr Asn Asp Tyr Thr Ser His Ile Thr Cys Arg Trp Ala  
 35 40 45

20

Asp Thr Gln Asp Ala Gln Arg Leu Val Asn Val Thr Leu Ile Arg Arg  
 50 55 60

25

Val Asn Glu Asp Leu Leu Glu Pro Val Ser Cys Asp Leu Ser Asp Asp  
 65 70 75 80

30

Met Pro Trp Ser Ala Cys Pro His Pro Arg Cys Val Pro Arg Arg Cys  
 85 90 95

35

Val Ile Pro Cys Gln Ser Phe Val Val Thr Asp Val Asp Tyr Phe Ser  
 100 105 110

40

Phe Gln Pro Asp Arg Pro Leu Gly Thr Arg Leu Thr Val Thr Leu Thr  
 115 120 125

45

Gln His Val Gln Pro Pro Glu Pro Arg Asp Leu Gln Ile Ser Thr Asp  
 130 135 140

50

Gln Asp His Phe Leu Leu Thr Trp Ser Val Ala Leu Gly Ser Pro Gln  
 145 150 155 160

55

Ser His Trp Leu Ser Pro Gly Asp Leu Glu Phe Glu Val Val Tyr Lys  
 165 170 175

60

Arg Leu Gln Asp Ser Trp Glu Asp Ala Ala Ile Leu Leu Ser Asn Thr  
 180 185 190

65

Ser Gln Ala Thr Leu Gly Pro Glu His Leu Met Pro Ser Ser Thr Tyr  
 195 200 205

70

Val Ala Arg Val Arg Thr Arg Leu Ala Pro Gly Ser Arg Leu Ser Gly  
 210 215 220

Arg Pro Ser Lys Trp Ser Pro Glu Val Cys Trp Asp Ser Gln Pro Gly  
 225 230 235 240

Asp Glu Ala Gln Pro Gln Asn Leu Glu Cys Phe Phe Asp Gly Ala Ala  
 245 250 255

Val Leu Ser Cys Ser Trp Glu Val Arg Lys Glu Val Ala Ser Ser Val  
 260 265 270  
 5 Ser Phe Gly Leu Phe Tyr Lys Pro Ser Pro Asp Ala Gly Glu Glu Glu  
 275 280 285  
 10 Cys Ser Pro Val Leu Arg Glu Gly Leu Gly Ser Leu His Thr Arg His  
 290 295 300  
 15 His Cys Gln Ile Pro Val Pro Asp Pro Ala Thr His Gly Gln Tyr Ile  
 305 310 315 320  
 Val Ser Val Gln Pro Arg Arg Ala Glu Lys His Ile Lys Ser Ser Val  
 325 330 335  
 20 Asn Ile Gln Met Ala Pro Pro Ser Leu Asn Val Thr Lys Asp Gly Asp  
 340 345 350  
 25 Ser Tyr Ser Leu Arg Trp Glu Thr Met Lys Met Arg Tyr Glu His Ile  
 355 360 365  
 30 Asp His Thr Phe Glu Ile Gln Tyr Arg Lys Asp Thr Ala Thr Trp Lys  
 370 375 380  
 35 Asp Ser Lys Thr Glu Thr Leu Gln Asn Ala His Ser Met Ala Leu Pro  
 385 390 395 400  
 Ala Leu Glu Pro Ser Thr Arg Tyr Trp Ala Arg Val Arg Val Arg Thr  
 405 410 415  
 40 Ser Arg Thr Gly Tyr Asn Gly Ile Trp Ser Glu Trp Ser Glu Ala Arg  
 420 425 430  
 45 Ser Trp Asp Thr Glu Ser Val Leu Pro Met Trp Val Leu Ala Leu Ile  
 435 440 445  
 50 Val Ile Phe Leu Thr Ile Ala Val Leu Leu Ala Leu Arg Phe Cys Gly  
 450 455 460  
 55 Ile Tyr Gly Tyr Arg Leu Arg Arg Lys Trp Glu Glu Lys Ile Pro Asn  
 465 470 475 480  
 Pro Ser Lys Ser His Leu Phe Gln Asn Gly Ser Ala Glu Leu Trp Pro  
 485 490 495  
 60 Pro Gly Ser Met Ser Ala Phe Thr Ser Gly Ser Pro Pro His Gln Gly  
 500 505 510  
 65 Pro Trp Gly Ser Arg Phe Pro Glu Leu Glu Gly Val Phe Pro Val Gly  
 515 520 525  
 70 Phe Gly Asp Ser Glu Val Ser Pro Leu Thr Ile Glu Asp Pro Lys His

	530					535						540					
5	Val 545	Cys	Asp	Pro	Pro	Ser 550	Gly	Pro	Asp	Thr	Thr 555	Pro	Ala	Ala	Ser	Asp 560	
10	Leu	Pro	Thr	Glu	Gln 565	Pro	Pro	Ser	Pro	Gln 570	Pro	Gly	Pro	Pro	Ala 575	Ala	
	Ser	His	Thr	Pro 580	Glu	Lys	Gln	Ala	Ser 585	Ser	Phe	Asp	Phe	Asn 590	Gly	Pro	
15	Tyr	Leu	Gly 595	Pro	Pro	His	Ser	Arg 600	Ser	Leu	Pro	Asp	Ile 605	Leu	Gly	Gln	
20	Pro	Glu 610	Pro	Pro	Gln	Glu	Gly 615	Gly	Ser	Gln	Lys	Ser 620	Pro	Pro	Pro	Gly	
25	Ser 625	Leu	Glu	Tyr	Leu	Cys 630	Leu	Pro	Ala	Gly	Gly 635	Gln	Val	Gln	Leu	Val 640	
30	Pro	Leu	Ala	Gln	Ala 645	Met	Gly	Pro	Gly	Gln 650	Ala	Val	Glu	Val	Glu 655	Arg	
	Arg	Pro	Ser	Gln 660	Gly	Ala	Ala	Gly	Ser 665	Pro	Ser	Leu	Glu	Ser 670	Gly	Gly	
35	Gly	Pro	Ala 675	Pro	Pro	Ala	Leu	Gly 680	Pro	Arg	Val	Gly 685	Gly	Gln	Asp	Gln	
40	Lys 690	Asp	Ser	Pro	Val	Ala	Ile 695	Pro	Met	Ser	Ser	Gly 700	Asp	Thr	Glu	Asp	
45	Pro 705	Gly	Val	Ala	Ser	Gly 710	Tyr	Val	Ser	Ser	Ala 715	Asp	Leu	Val	Phe	Thr 720	
50	Pro	Asn	Ser	Gly	Ala 725	Ser	Ser	Val	Ser	Leu 730	Val	Pro	Ser	Leu	Gly 735	Leu	
55	Pro	Ser	Asp	Gln 740	Thr	Pro	Ser	Leu	Cys 745	Pro	Gly	Leu	Ala	Ser 750	Gly	Pro	
	Pro	Gly	Ala 755	Pro	Gly	Pro	Val	Lys 760	Ser	Gly	Phe	Glu	Gly 765	Tyr	Val	Glu	
60	Leu 770	Pro	Pro	Ile	Glu	Gly	Arg 775	Ser	Pro	Arg	Ser	Pro 780	Arg	Asn	Asn	Pro	
65	Val 785	Pro	Pro	Glu	Ala	Lys 790	Ser	Pro	Val	Leu	Asn 795	Pro	Gly	Glu	Arg	Pro 800	
70	Ala	Asp	Val	Ser	Pro	Thr	Ser	Pro	Gln 805	Pro	Glu	Gly	Leu	Leu	Val 815	Leu	

Gln Gln Val Gly Asp Tyr Cys Phe Leu Pro Gly Leu Gly Pro Gly Pro  
 820 825 830

5

Leu Ser Leu Arg Ser Lys Pro Ser Ser Pro Gly Pro Gly Pro Glu Ile  
 835 840 845

10

Lys Asn Leu Asp Gln Ala Phe Gln Val Lys Lys Pro Pro Gly Gln Ala  
 850 855 860

15

Val Pro Gln Val Pro Val Ile Gln Leu Phe Lys Ala Leu Lys Gln Gln  
 865 870 875 880

20

Asp Tyr Leu Ser Leu Pro Pro Trp Glu Val Asn Lys Pro Gly Glu Val  
 885 890 895

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Cys  
 <210> 132  
 <211> 261  
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 <213> Homo sapiens

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<300>  
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<400> 132

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Met Ile Tyr Lys Cys Pro Met Cys Arg Glu Phe Phe Ser Glu Arg Ala  
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Asp Leu Phe Met His Gln Lys Val His Thr Ala Glu Lys Pro His Lys  
 20 25 30

50

Cys Asp Lys Cys Asp Lys Gly Phe Phe His Ile Ser Glu Leu His Ile  
 35 40 45

55

His Trp Arg Asp His Thr Gly Glu Lys Val Tyr Lys Cys Asp Asp Cys  
 50 55 60

60

Gly Lys Asp Phe Ser Thr Thr Thr Lys Leu Asn Arg His Lys Lys Ile  
 65 70 75 80

65

His Thr Val Glu Lys Pro Tyr Lys Cys Tyr Glu Cys Gly Lys Ala Phe  
 85 90 95

70

Asn Trp Ser Pro His Leu Gln Ile His Met Arg Val His Thr Gly Glu  
 100 105 110

Lys Pro Tyr Val Cys Ser Glu Cys Gly Arg Gly Phe Ser Asn Ser Ser  
 115 120 125

Asn Leu Cys Met His Gln Arg Val His Thr Gly Glu Lys Pro Phe Lys



	130		135		140											
5	Cys 145	Glu	Glu	Cys	Gly 150	Lys	Ala	Phe	Arg	His	Thr 155	Ser	Ser	Leu	Cys	Met 160
10	His	Gln	Arg	Val	His 165	Thr	Gly	Glu	Lys	Pro 170	Tyr	Lys	Cys	Tyr	Glu 175	Cys
15	Gly	Lys	Ala	Phe 180	Ser	Gln	Ser	Ser	Ser 185	Leu	Cys	Ile	His	Gln 190	Arg	Val
20	His	Thr	Gly 195	Glu	Lys	Pro	Tyr	Arg 200	Cys	Cys	Gly	Cys	Gly 205	Lys	Ala	Phe
25	Ser	Gln 210	Ser	Ser	Ser	Leu	Cys 215	Ile	His	Gln	Arg	Val 220	His	Thr	Gly	Glu
30	Lys	Pro	Phe	Lys	Cys	Asp 230	Glu	Cys	Gly	Lys	Ala 235	Phe	Ser	Gln	Ser	Thr 240
35	Ser	Leu	Cys	Ile	His 245	Gln	Arg	Val	His	Thr 250	Lys	Glu	Arg	Asn	His 255	Leu
40	Lys	Ile	Ser	Val	Ile 260											
45	<210>	133														
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	<212>	PRT														
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65	Met	Asp	Asp	Gln 20	Arg	Asp	Leu	Ile	Ser 25	Asn	Asn	Glu	Gln	Leu 30	Pro	Met
70	Leu	Gly	Arg	Arg	Pro	Gly	Ala	Pro 40	Glu	Ser	Lys	Cys	Ser	Arg	Gly	Ala 45
	Leu	Tyr 50	Thr	Gly	Phe	Ser	Ile 55	Leu	Val	Thr	Leu	Leu 60	Leu	Ala	Gly	Gln
	Ala	Thr 65	Thr	Ala	Tyr	Phe	Leu	Tyr	Gln	Gln	Gln 75	Gly	Arg	Leu	Asp	Lys 80
	Leu	Thr	Val	Thr	Ser	Gln	Asn	Leu	Gln	Leu	Glu	Asn	Leu	Arg	Met	Lys 95

Leu Pro Lys Pro Pro Lys Pro Val Ser Lys Met Arg Met Ala Thr Pro  
 100 105 110  
 5 Leu Leu Met Gln Ala Leu Pro Met Gly Ala Leu Pro Gln Gly Pro Met  
 115 120 125  
 10 Gln Asn Ala Thr Lys Tyr Gly Asn Met Thr Glu Asp His Val Met His  
 130 135 140  
 15 Leu Leu Gln Asn Ala Asp Pro Leu Lys Val Tyr Pro Pro Leu Lys Gly  
 145 150 155 160  
 20 Ser Phe Pro Glu Asn Leu Arg His Leu Lys Asn Thr Met Glu Thr Ile  
 165 170 175  
 Asp Trp Lys Val Phe Glu Ser Trp Met His His Trp Leu Leu Phe Glu  
 180 185 190  
 25 Met Ser Arg His Ser Leu Glu Gln Lys Pro Thr Asp Ala Pro Pro Lys  
 195 200 205  
 30 Val Leu Thr Lys Cys Gln Glu Glu Val Ser His Ile Pro Ala Val His  
 210 215 220  
 35 Pro Gly Ser Phe Arg Pro Lys Cys Asp Glu Asn Gly Asn Tyr Leu Pro  
 225 230 235 240  
 40 Leu Gln Cys Tyr Gly Ser Ile Gly Tyr Cys Trp Cys Val Phe Pro Asn  
 245 250 255  
 Gly Thr Glu Val Pro Asn Thr Arg Ser Arg Gly His His Asn Cys Ser  
 260 265 270  
 45 Glu Ser Leu Glu Leu Glu Asp Pro Ser Ser Gly Leu Gly Val Thr Lys  
 275 280 285  
 50 Gln Asp Leu Gly Pro Val Pro Met  
 290 295  
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 65 <400> 134  
 Met Arg Arg Leu Leu Ile Pro Leu Ala Leu Trp Leu Gly Ala Val Gly  
 1 5 10 15  
 70 Val Gly Val Ala Glu Leu Thr Glu Ala Gln Arg Arg Gly Leu Gln Val

83

20 25 30  
 5 Ala Leu Glu Glu Phe His Lys His Pro Pro Val Gln Trp Ala Phe Gln  
 35 40 45  
 10 Glu Thr Ser Val Glu Ser Ala Val Asp Thr Pro Phe Pro Ala Gly Ile  
 50 55 60  
 15 Phe Val Arg Leu Glu Phe Lys Leu Gln Gln Thr Ser Cys Arg Lys Arg  
 65 70 75 80  
 20 Asp Trp Lys Lys Pro Glu Cys Lys Val Arg Pro Asn Gly Arg Lys Arg  
 85 90 95  
 25 Lys Cys Leu Ala Cys Ile Lys Leu Gly Ser Glu Asp Lys Val Leu Gly  
 100 105 110  
 30 Arg Leu Val His Cys Pro Ile Glu Thr Gln Val Leu Arg Glu Ala Glu  
 115 120 125  
 35 Glu His Gln Glu Thr Gln Cys Leu Arg Val Gln Arg Ala Gly Glu Asp  
 130 135 140  
 40 Pro His Ser Phe Tyr Phe Pro Gly Gln Phe Ala Phe Ser Lys Ala Leu  
 145 150 155 160  
 45 Pro Arg Ser  
 50 <210> 135  
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 20 25 30  
 70 Ala Gln Gln Met Val Gln Pro Gln Ser Pro Val Ala Val Ser Gln Ser  
 35 40 45  
 Lys Pro Gly Cys Tyr Asp Asn Gly Lys His Tyr Gln Ile Asn Gln Gln  
 50 55 60  
 Trp Glu Arg Thr Tyr Leu Gly Asn Ala Leu Val Cys Thr Cys Tyr Gly  
 65 70 75 80

5  
10  
15  
20  
25  
30  
35  
40  
45  
50  
55  
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70

Gly Ser Arg Gly Phe Asn Cys Glu Ser Lys Pro Glu Ala Glu Thr  
85 90 95

Cys Phe Asp Lys Tyr Thr Gly Asn Thr Tyr Arg Val Gly Asp Thr Tyr  
100 105 110

Glu Arg Pro Lys Asp Ser Met Ile Trp Asp Cys Thr Cys Ile Gly Ala  
115 120 125

Gly Arg Gly Arg Ile Ser Cys Thr Ile Ala Asn Arg Cys His Glu Gly  
130 135 140

Gly Gln Ser Tyr Lys Ile Gly Asp Thr Trp Arg Arg Pro His Glu Thr  
145 150 155 160

Gly Gly Tyr Met Leu Glu Cys Val Cys Leu Gly Asn Gly Lys Gly Glu  
165 170 175

Trp Thr Cys Lys Pro Ile Ala Glu Lys Cys Phe Asp His Ala Ala Gly  
180 185 190

Thr Ser Tyr Val Val Gly Glu Thr Trp Glu Lys Pro Tyr Gln Gly Trp  
195 200 205

Met Met Val Asp Cys Thr Cys Leu Gly Glu Gly Ser Gly Arg Ile Thr  
210 215 220

Cys Thr Ser Arg Asn Arg Cys Asn Asp Gln Asp Thr Arg Thr Ser Tyr  
225 230 235 240

Arg Ile Gly Asp Thr Trp Ser Lys Lys Asp Asn Arg Gly Asn Leu Leu  
245 250 255

Gln Cys Ile Cys Thr Gly Asn Gly Arg Gly Glu Trp Lys Cys Glu Arg  
260 265 270

His Thr Ser Val Gln Thr Thr Ser Ser Gly Ser Gly Pro Phe Thr Asp  
275 280 285

Val Arg Ala Ala Val Tyr Gln Pro Gln Pro His Pro Gln Pro Pro Pro  
290 295 300

Tyr Gly His Cys Val Thr Asp Ser Gly Val Val Tyr Ser Val Gly Met  
305 310 315 320

Gln Trp Leu Lys Thr Gln Gly Asn Lys Gln Met Leu Cys Thr Cys Leu  
325 330 335

Gly Asn Gly Val Ser Cys Gln Glu Thr Ala Val Thr Gln Thr Tyr Gly  
340 345 350

Gly Asn Ser Asn Gly Glu Pro Cys Val Leu Pro Phe Thr Tyr Asn Gly

	355		360		365
5	Arg Thr Phe Tyr Ser Cys Thr Thr Glu Gly Arg Gln Asp Gly His Leu	370	375	380	
10	Trp Cys Ser Thr Thr Ser Asn Tyr Glu Gln Asp Gln Lys Tyr Ser Phe	385	390	395	400
15	Cys Thr Asp His Thr Val Leu Val Gln Thr Gln Gly Gly Asn Ser Asn	405	410	415	
20	Gly Ala Leu Cys His Phe Pro Phe Leu Tyr Asn Asn His Asn Tyr Thr	420	425	430	
25	Asp Cys Thr Ser Glu Gly Arg Arg Asp Asn Met Lys Trp Cys Gly Thr	435	440	445	
30	Thr Gln Asn Tyr Asp Ala Asp Gln Lys Phe Gly Phe Cys Pro Met Ala	450	455	460	
35	Ala His Glu Glu Ile Cys Thr Thr Asn Glu Gly Val Met Tyr Arg Ile	465	470	475	480
40	Gly Asp Gln Trp Asp Lys Gln His Asp Met Gly His Met Met Arg Cys	485	490	495	
45	Thr Cys Val Gly Asn Gly Arg Gly Glu Trp Thr Cys Ile Ala Tyr Ser	500	505	510	
50	Gln Leu Arg Asp Gln Cys Ile Val Asp Asp Ile Thr Tyr Asn Val Asn	515	520	525	
55	Asp Thr Phe His Lys Arg His Glu Glu Gly His Met Leu Asn Cys Thr	530	535	540	
60	Cys Phe Gly Gln Gly Arg Gly Arg Trp Lys Cys Asp Pro Val Asp Gln	545	550	555	560
65	Cys Gln Asp Ser Glu Thr Gly Thr Phe Tyr Gln Ile Gly Asp Ser Trp	565	570	575	
70	Glu Lys Tyr Val His Gly Val Arg Tyr Gln Cys Tyr Cys Tyr Gly Arg	580	585	590	
	Gly Ile Gly Glu Trp His Cys Gln Pro Leu Gln Thr Tyr Pro Ser Ser	595	600	605	
	Ser Gly Pro Val Glu Val Phe Ile Thr Glu Thr Pro Ser Gln Pro Asn	610	615	620	
	Ser His Pro Ile Gln Trp Asn Ala Pro Gln Pro Ser His Ile Ser Lys	625	630	635	640

Tyr Ile Leu Arg Trp Arg Pro Lys Asn Ser Val Gly Arg Trp Lys Glu  
 645 650 655  
 5  
 Ala Thr Ile Pro Gly His Leu Asn Ser Tyr Thr Ile Lys Gly Leu Lys  
 660 665 670  
 10  
 Pro Gly Val Val Tyr Glu Gly Gln Leu Ile Ser Ile Gln Gln Tyr Gly  
 675 680 685  
 15  
 His Gln Glu Val Thr Arg Phe Asp Phe Thr Thr Thr Ser Thr Ser Thr  
 690 695 700  
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 Pro Val Thr Ser Asn Thr Val Thr Gly Glu Thr Thr Pro Phe Ser Pro  
 705 710 715 720  
 25  
 Leu Val Ala Thr Ser Glu Ser Val Thr Glu Ile Thr Ala Ser Ser Phe  
 725 730 735  
 30  
 Val Val Ser Trp Val Ser Ala Ser Asp Thr Val Ser Gly Phe Arg Val  
 740 745 750  
 35  
 Glu Tyr Glu Leu Ser Glu Glu Gly Asp Glu Pro Gln Tyr Leu Asp Leu  
 755 760 765  
 40  
 Pro Ser Thr Ala Thr Ser Val Asn Ile Pro Asp Leu Leu Pro Gly Arg  
 770 775 780  
 45  
 Lys Tyr Ile Val Asn Val Tyr Gln Ile Ser Glu Asp Gly Glu Gln Ser  
 785 790 795 800  
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 Leu Ile Leu Ser Thr Ser Gln Thr Thr Ala Pro Asp Ala Pro Pro Asp  
 805 810 815  
 55  
 Pro Thr Val Asp Gln Val Asp Asp Thr Ser Ile Val Val Arg Trp Ser  
 820 825 830  
 60  
 Arg Pro Gln Ala Pro Ile Thr Gly Tyr Arg Ile Val Tyr Ser Pro Ser  
 835 840 845  
 65  
 Val Glu Gly Ser Ser Thr Glu Leu Asn Leu Pro Glu Thr Ala Asn Ser  
 850 855 860  
 70  
 Val Thr Leu Ser Asp Leu Gln Pro Gly Val Gln Tyr Asn Ile Thr Ile  
 865 870 875 880  
 Tyr Ala Val Glu Glu Asn Gln Glu Ser Thr Pro Val Val Ile Gln Gln  
 885 890 895  
 Glu Thr Thr Gly Thr Pro Arg Ser Asp Thr Val Pro Ser Pro Arg Asp  
 900 905 910  
 Leu Gln Phe Val Glu Val Thr Asp Val Lys Val Thr Ile Met Trp Thr

	915		920		925
5	Pro 930	Pro Glu Ser Ala Val	Thr 935	Gly Tyr Arg Val	Asp 940 Val Ile Pro Val
10	Asn 945	Leu Pro Gly Glu His 950	Gly Gln Arg Leu	Pro 955	Ile Ser Arg Asn Thr 960
15	Phe Ala Glu Val	Thr 965	Gly Leu Ser Pro	Gly 970	Val Thr Tyr Tyr Phe Lys 975
20	Val Phe Ala Val	Ser His Gly Arg	Glu 985	Ser Lys Pro Leu	Thr 990 Ala Gln
25	Gln Thr Thr 995	Lys Leu Asp Ala Pro	Thr 1000	Asn Leu Gln Phe	Val 1005 Asn Glu
30	Thr Asp 1010	Ser Thr Val Leu Val	Arg Trp Thr Pro	Pro 1020	Arg Ala Gln
35	Ile Thr 1025	Gly Tyr Arg Leu Thr	Val 1030	Gly Leu Thr Arg	Arg 1035 Gly Gln
40	Pro Arg 1040	Gln Tyr Asn Val	Gly 1045	Pro Ser Val Ser	Lys 1050 Tyr Pro Leu
45	Arg Asn 1055	Leu Gln Pro Ala Ser	Glu 1060	Tyr Thr Val Ser	Leu 1065 Val Ala
50	Ile Lys 1070	Gly Asn Gln Glu Ser	Pro 1075	Lys Ala Thr Gly	Val 1080 Phe Thr
55	Thr Leu 1085	Gln Pro Gly Ser Ser	Ile 1090	Pro Pro Tyr Asn	Thr 1095 Glu Val
60	Thr Glu 1100	Thr Thr Ile Val Ile	Thr 1105	Trp Thr Pro Ala	Pro 1110 Arg Ile
65	Gly Phe 1115	Lys Leu Gly Val Arg	Pro 1120	Ser Gln Gly Gly	Glu 1125 Ala Pro
70	Arg Glu 1130	Val Thr Ser Asp Ser	Gly 1135	Ser Ile Val Val	Ser 1140 Gly Leu
	Thr Pro 1145	Gly Val Glu Tyr Val	Tyr 1150	Thr Ile Gln Val	Leu 1155 Arg Asp
	Gly Gln 1160	Glu Arg Asp Ala Pro	Ile 1165	Val Asn Lys Val	Val 1170 Thr Pro
	Leu Ser 1175	Pro Pro Thr Asn Leu	His 1180	Leu Glu Ala Asn	Pro 1185 Asp Thr

	Gly Val	Leu Thr Val Ser	Trp	Glu Arg Ser Thr	Thr	Pro Asp Ile
	1190		1195		1200	
5	Thr Gly	Tyr Arg Ile Thr	Thr	Thr Pro Thr Asn	Gly	Gln Gln Gly
	1205		1210		1215	
10	Asn Ser	Leu Glu Glu Val	Val	His Ala Asp Gln	Ser	Ser Cys Thr
	1220		1225		1230	
15	Phe Asp	Asn Leu Ser Pro	Gly	Leu Glu Tyr Asn	Val	Ser Val Tyr
	1235		1240		1245	
20	Thr Val	Lys Asp Asp Lys	Glu	Ser Val Pro Ile	Ser	Asp Thr Ile
	1250		1255		1260	
25	Ile Pro	Ala Val Pro Pro	Pro	Thr Asp Leu Arg	Phe	Thr Asn Ile
	1265		1270		1275	
30	Gly Pro	Asp Thr Met Arg	Val	Thr Trp Ala Pro	Pro	Pro Ser Ile
	1280		1285		1290	
35	Asp Leu	Thr Asn Phe Leu	Val	Arg Tyr Ser Pro	Val	Lys Asn Glu
	1295		1300		1305	
40	Glu Asp	Val Ala Glu Leu	Ser	Ile Ser Pro Ser	Asp	Asn Ala Val
	1310		1315		1320	
45	Val Leu	Thr Asn Leu Leu	Pro	Gly Thr Glu Tyr	Val	Val Ser Val
	1325		1330		1335	
50	Ser Ser	Val Tyr Glu Gln	His	Glu Ser Thr Pro	Leu	Arg Gly Arg
	1340		1345		1350	
55	Gln Lys	Thr Gly Leu Asp	Ser	Pro Thr Gly Ile	Asp	Phe Ser Asp
	1355		1360		1365	
60	Ile Thr	Ala Asn Ser Phe	Thr	Val His Trp Ile	Ala	Pro Arg Ala
	1370		1375		1380	
65	Thr Ile	Thr Gly Tyr Arg	Ile	Arg His His Pro	Glu	His Phe Ser
	1385		1390		1395	
70	Gly Arg	Pro Arg Glu Asp	Arg	Val Pro His Ser	Arg	Asn Ser Ile
	1400		1405		1410	
	Thr Leu	Thr Asn Leu Thr	Pro	Gly Thr Glu Tyr	Val	Val Ser Ile
	1415		1420		1425	
	Val Ala	Leu Asn Gly Arg	Glu	Glu Ser Pro Leu	Leu	Ile Gly Gln
	1430		1435		1440	
	Gln Ser	Thr Val Ser Asp	Val	Pro Arg Asp Leu	Glu	Val Val Ala



	1445		1450		1455
5	Ala Thr 1460	Pro Thr Ser Leu	Leu 1465	Ile Ser Trp Asp	Ala Pro Ala Val 1470
10	Thr Val 1475	Arg Tyr Tyr Arg	Ile 1480	Thr Tyr Gly Glu	Thr Gly Gly Asn 1485
15	Ser Pro 1490	Val Gln Glu Phe	Thr 1495	Val Pro Gly Ser	Lys Ser Thr Ala 1500
20	Thr Ile 1505	Ser Gly Leu Lys	Pro 1510	Gly Val Asp Tyr	Thr Ile Thr Val 1515
25	Tyr Ala 1520	Val Thr Gly Arg	Gly 1525	Asp Ser Pro Ala	Ser Ser Lys Pro 1530
30	Ile Ser 1535	Ile Asn Tyr Arg	Thr 1540	Glu Ile Asp Lys	Pro Ser Gln Met 1545
35	Gln Val 1550	Thr Asp Val Gln	Asp 1555	Asn Ser Ile Ser	Val Lys Trp Leu 1560
40	Pro Ser 1565	Ser Ser Pro Val	Thr 1570	Gly Tyr Arg Val	Thr Thr Thr Pro 1575
45	Lys Asn 1580	Gly Pro Gly Pro	Thr 1585	Lys Thr Lys Thr	Ala Gly Pro Asp 1590
50	Gln Thr 1595	Glu Met Thr Ile	Glu 1600	Gly Leu Gln Pro	Thr Val Glu Tyr 1605
55	Val Val 1610	Ser Val Tyr Ala	Gln 1615	Asn Pro Ser Gly	Glu Ser Gln Pro 1620
60	Leu Val 1625	Gln Thr Ala Val	Thr 1630	Asn Ile Asp Arg	Pro Lys Gly Leu 1635
65	Ala Phe 1640	Thr Asp Val Asp	Val 1645	Asp Ser Ile Lys	Ile Ala Trp Glu 1650
70	Ser Pro 1655	Gln Gly Gln Val	Ser 1660	Arg Tyr Arg Val	Thr Tyr Ser Ser 1665
	Pro Glu 1670	Asp Gly Ile His	Glu 1675	Leu Phe Pro Ala	Pro Asp Gly Glu 1680
	Glu Asp 1685	Thr Ala Glu Leu	Gln 1690	Gly Leu Arg Pro	Gly Ser Glu Tyr 1695
	Thr Val 1700	Ser Val Val Ala	Leu 1705	His Asp Asp Met	Glu Ser Gln Pro 1710

Leu Ile Gly Thr Gln Ser Thr Ala Ile Pro Ala Pro Thr Asp Leu  
 1715 1720 1725  
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 Lys Phe Thr Gln Val Thr Pro Thr Ser Leu Ser Ala Gln Trp Thr  
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 Pro Pro Asn Val Gln Leu Thr Gly Tyr Arg Val Arg Val Thr Pro  
 1745 1750 1755  
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 Lys Glu Lys Thr Gly Pro Met Lys Glu Ile Asn Leu Ala Pro Asp  
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 Ser Ser Ser Val Val Val Ser Gly Leu Met Val Ala Thr Lys Tyr  
 1775 1780 1785  
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 Glu Val Ser Val Tyr Ala Leu Lys Asp Thr Leu Thr Ser Arg Pro  
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 Ala Gln Gly Val Val Thr Thr Leu Glu Asn Val Ser Pro Pro Arg  
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 Arg Ala Arg Val Thr Asp Ala Thr Glu Thr Thr Ile Thr Ile Ser  
 1820 1825 1830  
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 Trp Arg Thr Lys Thr Glu Thr Ile Thr Gly Phe Gln Val Asp Ala  
 1835 1840 1845  
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 Val Pro Ala Asn Gly Gln Thr Pro Ile Gln Arg Thr Ile Lys Pro  
 1850 1855 1860  
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 Asp Val Arg Ser Tyr Thr Ile Thr Gly Leu Gln Pro Gly Thr Asp  
 1865 1870 1875  
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 Tyr Lys Ile Tyr Leu Tyr Thr Leu Asn Asp Asn Ala Arg Ser Ser  
 1880 1885 1890  
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 Pro Val Val Ile Asp Ala Ser Thr Ala Ile Asp Ala Pro Ser Asn  
 1895 1900 1905  
 65  
 Leu Arg Phe Leu Ala Thr Thr Pro Asn Ser Leu Leu Val Ser Trp  
 1910 1915 1920  
 70  
 Gln Pro Pro Arg Ala Arg Ile Thr Gly Tyr Ile Ile Lys Tyr Glu  
 1925 1930 1935  
 Lys Pro Gly Ser Pro Pro Arg Glu Val Val Pro Arg Pro Arg Pro  
 1940 1945 1950  
 Gly Val Thr Glu Ala Thr Ile Thr Gly Leu Glu Pro Gly Thr Glu  
 1955 1960 1965  
 Tyr Thr Ile Tyr Val Ile Ala Leu Lys Asn Asn Gln Lys Ser Glu

	1970		1975		1980	
5	Pro Leu 1985	Ile Gly Arg Lys	Lys 1990	Thr Asp Glu Leu	Pro 1995	Gln Leu Val
10	Thr Leu 2000	Pro His Pro Asn	Leu 2005	His Gly Pro Glu	Ile 2010	Leu Asp Val
15	Pro Ser 2015	Thr Val Gln Lys	Thr 2020	Pro Phe Val Thr	His 2025	Pro Gly Tyr
20	Asp Thr 2030	Gly Asn Gly Ile	Gln 2035	Leu Pro Gly Thr	Ser 2040	Gly Gln Gln
25	Pro Ser 2045	Val Gly Gln Gln	Met 2050	Ile Phe Glu Glu	His 2055	Gly Phe Arg
30	Arg Thr 2060	Thr Pro Pro Thr	Thr 2065	Ala Thr Pro Ile	Arg 2070	His Arg Pro
35	Arg Pro 2075	Tyr Pro Pro Asn	Val 2080	Gly Glu Glu Ile	Gln 2085	Ile Gly His
40	Ile Pro 2090	Arg Glu Asp Val	Asp 2095	Tyr His Leu Tyr	Pro 2100	His Gly Pro
45	Gly Leu 2105	Asn Pro Asn Ala	Ser 2110	Thr Gly Gln Glu	Ala 2115	Leu Ser Gln
50	Thr Thr 2120	Ile Ser Trp Ala	Pro 2125	Phe Gln Asp Thr	Ser 2130	Glu Tyr Ile
55	Ile Ser 2135	Cys His Pro Val	Gly 2140	Thr Asp Glu Glu	Pro 2145	Leu Gln Phe
60	Arg Val 2150	Pro Gly Thr Ser	Thr 2155	Ser Ala Thr Leu	Thr 2160	Gly Leu Thr
65	Arg Gly 2165	Ala Thr Tyr Asn	Ile 2170	Ile Val Glu Ala	Leu 2175	Lys Asp Gln
70	Gln Arg 2180	His Lys Val Arg	Glu 2185	Glu Val Val Thr	Val 2190	Gly Asn Ser
	Val Asn 2195	Glu Gly Leu Asn	Gln 2200	Pro Thr Asp Asp	Ser 2205	Cys Phe Asp
	Pro Tyr 2210	Thr Val Ser His	Tyr 2215	Ala Val Gly Asp	Glu 2220	Trp Glu Arg
	Met Ser 2225	Glu Ser Gly Phe	Lys 2230	Leu Leu Cys Gln	Cys 2235	Leu Gly Phe

Gly Ser Gly His Phe Arg Cys Asp Ser Ser Arg Trp Cys His Asp  
 2240 2245 2250  
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 Asn Gly Val Asn Tyr Lys Ile Gly Glu Lys Trp Asp Arg Gln Gly  
 2255 2260 2265  
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 Glu Asn Gly Gln Met Met Ser Cys Thr Cys Leu Gly Asn Gly Lys  
 2270 2280  
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 Gly Glu Phe Lys Cys Asp Pro His Glu Ala Thr Cys Tyr Asp Asp  
 2285 2290 2295  
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 Gly Lys Thr Tyr His Val Gly Glu Gln Trp Gln Lys Glu Tyr Leu  
 2300 2305 2310  
 Gly Ala Ile Cys Ser Cys Thr Cys Phe Gly Gly Gln Arg Gly Trp  
 2315 2320 2325  
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 Arg Cys Asp Asn Cys Arg Arg Pro Gly Gly Glu Pro Ser Pro Glu  
 2330 2335 2340  
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 Gly Thr Thr Gly Gln Ser Tyr Asn Gln Tyr Ser Gln Arg Tyr His  
 2345 2350 2355  
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 Gln Arg Thr Asn Thr Asn Val Asn Cys Pro Ile Glu Cys Phe Met  
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 20 25 30  
 65  
 Tyr Val Asn Lys Arg Asn Thr Thr Trp Gln Ala Gly His Asn Phe Tyr  
 35 40 45  
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 Gly Pro Lys Pro Pro Gln Arg Val Met Phe Thr Glu Asp Leu Lys Leu

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Pro Lys Lys Glu Thr Gly Ala Ala Ser Phe Leu Cys Arg Tyr Pro Glu
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Tyr Asp Gly Arg Gly Val Leu Ile Ala Val Leu Asp Thr Gly Val Asp
25 35 40 45

Pro Gly Ala Pro Gly Met Gln Val Thr Thr Asp Gly Lys Pro Lys Ile
30 50 55 60

Val Asp Ile Ile Asp Thr Thr Gly Ser Gly Asp Val Asn Thr Ala Thr
35 65 70 75 80

Glu Val Glu Pro Lys Asp Gly Glu Ile Val Gly Leu Ser Gly Arg Val
40 85 90 95

Leu Lys Ile Pro Ala Ser Trp Thr Asn Pro Ser Gly Lys Tyr His Ile
45 100 105 110

Gly Ile Lys Asn Gly Tyr Asp Phe Tyr Pro Lys Ala Leu Lys Glu Arg
50 115 120 125

Ile Gln Lys Glu Arg Lys Glu Lys Ile Trp Asp Pro Val His Arg Val
55 130 135 140

Ala Leu Ala Glu Ala Cys Arg Lys Gln Glu Glu Phe Asp Val Ala Asn
60 145 150 155 160

Asn Gly Ser Ser Gln Ala Asn Lys Leu Ile Lys Glu Glu Leu Gln Ser
65 165 170 175

Gln Val Glu Leu Leu Asn Ser Phe Glu Lys Lys Tyr Ser Asp Pro Gly
70 180 185 190

Pro Val Tyr Asp Cys Leu Val Trp His Asp Gly Glu Val Trp Arg Ala
75 195 200 205

Cys Ile Asp Ser Asn Glu Asp Gly Asp Leu Ser Lys Ser Thr Val Leu
80 210 215 220

Arg Asn Tyr Lys Glu Ala Gln Glu Tyr Gly Ser Phe Gly Thr Ala Glu
85 225 230 235

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	225		230		235		240									
5	Met	Leu	Asn	Tyr	Ser 245	Val	Asn	Ile	Tyr	Asp 250	Asp	Gly	Asn	Leu	Leu 255	Ser
10	Ile	Val	Thr	Ser 260	Gly	Gly	Ala	His	Gly 265	Thr	His	Val	Ala	Ser 270	Ile	Ala
15	Ala	Gly	His 275	Phe	Pro	Glu	Glu	Pro 280	Glu	Arg	Asn	Gly	Val 285	Ala	Pro	Gly
20	Ala	Gln 290	Ile	Leu	Ser	Ile	Lys 295	Ile	Gly	Asp	Thr	Arg 300	Leu	Ser	Thr	Met
25	Glu	Thr	Gly	Thr	Gly	Leu 310	Ile	Arg	Ala	Met	Ile 315	Glu	Val	Ile	Asn	His 320
30	Lys	Cys	Asp	Leu	Val 325	Asn	Tyr	Ser	Tyr	Gly 330	Glu	Ala	Thr	His	Trp 335	Pro
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40	Asn	Ile	Ile 355	Tyr	Val	Ser	Ser	Ala 360	Gly	Asn	Asn	Gly	Pro 365	Cys	Leu	Ser
45	Thr	Val 370	Gly	Cys	Pro	Gly	Gly 375	Thr	Thr	Ser	Ser	Val 380	Ile	Gly	Val	Gly
50	Ala	Tyr	Val	Ser	Pro	Asp 390	Met	Met	Val	Ala	Glu 395	Tyr	Ser	Leu	Arg	Glu 400
55	Lys	Leu	Pro	Ala	Asn 405	Gln	Tyr	Thr	Trp	Ser 410	Ser	Arg	Gly	Pro	Ser 415	Ala
60	Asp	Gly	Ala	Leu 420	Gly	Val	Ser	Ile	Ser 425	Ala	Pro	Gly	Gly	Ala 430	Ile	Ala
65	Ser	Val	Pro 435	Asn	Trp	Thr	Leu	Arg 440	Gly	Thr	Gln	Leu	Met 445	Asn	Gly	Thr
70	Ser	Met 450	Ser	Ser	Pro	Asn	Ala 455	Cys	Gly	Gly	Ile	Ala 460	Leu	Ile	Leu	Ser
	Gly	Leu	Lys	Ala	Asn	Asn 470	Ile	Asp	Tyr	Thr	Val 475	His	Ser	Val	Arg	Arg 480
	Ala	Leu	Glu	Asn	Thr 485	Ala	Val	Lys	Ala	Asp 490	Asn	Ile	Glu	Val	Phe	Ala 495
	Gln	Gly	His	Gly 500	Ile	Ile	Gln	Val	Asp 505	Lys	Ala	Tyr	Asp	Tyr 510	Leu	Val

Gln Asn Thr Ser Phe Ala Asn Lys Leu Gly Phe Thr Val Thr Val Gly  
                   515                  520                  525  
 5 Asn Asn Arg Gly Ile Tyr Leu Arg Asp Pro Val Gln Val Ala Ala Pro  
           530                  535                  540  
 10 Ser Asp His Gly Val Gly Ile Glu Pro Val Phe Pro Glu Asn Thr Glu  
       545                  550                  555                  560  
 15 Asn Ser Glu Lys Ile Ser Leu Gln Leu His Leu Ala Leu Thr Ser Asn  
                   565                  570                  575  
 20 Ser Ser Trp Val Gln Cys Pro Ser His Leu Glu Leu Met Asn Gln Cys  
                   580                  585                  590  
 25 Arg His Ile Asn Ile Arg Val Asp Pro Arg Gly Leu Arg Glu Gly Leu  
           595                  600                  605  
 30 His Tyr Thr Glu Val Cys Gly Tyr Asp Ile Ala Ser Pro Asn Ala Gly  
           610                  615                  620  
 35 Pro Leu Phe Arg Val Pro Ile Thr Ala Val Ile Ala Ala Lys Val Asn  
       625                  630                  635                  640  
 40 Glu Ser Ser His Tyr Asp Leu Ala Phe Thr Asp Val His Phe Lys Pro  
                   645                  650                  655  
 45 Gly Gln Ile Arg Arg His Phe Ile Glu Val Pro Glu Gly Ala Thr Trp  
                   660                  665                  670  
 50 Ala Glu Val Thr Val Cys Ser Cys Ser Ser Glu Val Ser Ala Lys Phe  
           675                  680                  685  
 55 Val Leu His Ala Val Gln Leu Val Lys Gln Arg Ala Tyr Arg Ser His  
       690                  695                  700  
 60 Glu Phe Tyr Lys Phe Cys Ser Leu Pro Glu Lys Gly Thr Leu Thr Glu  
       705                  710                  715                  720  
 65 Ala Phe Pro Val Leu Gly Gly Lys Ala Ile Glu Phe Cys Ile Ala Arg  
                   725                  730                  735  
 70 Trp Trp Ala Ser Leu Ser Asp Val Asn Ile Asp Tyr Thr Ile Ser Phe  
           740                  745                  750  
 75 His Gly Ile Val Cys Thr Ala Pro Gln Leu Asn Ile His Ala Ser Glu  
           755                  760                  765  
 80 Gly Ile Asn Arg Phe Asp Val Gln Ser Ser Leu Lys Tyr Glu Asp Leu  
       770                  775                  780  
 85 Ala Pro Cys Ile Thr Leu Lys Asn Trp Val Gln Thr Leu Arg Pro Val



70

Arg Met Lys Arg Leu Asn Glu Ile Val Asp Ala Ala Asn Ala Val  
 1070 1075 1080  
 5 Ile Ser His Ile Asp Gln Thr Ala Leu Ala Val Tyr Ile Ala Met  
 1085 1090 1095  
 10 Lys Thr Asp Pro Arg Pro Asp Ala Ala Thr Ile Lys Asn Asp Met  
 1100 1105 1110  
 15 Asp Lys Gln Lys Ser Thr Leu Val Asp Ala Leu Cys Arg Lys Gly  
 1115 1120 1125  
 20 Cys Ala Leu Ala Asp His Leu Leu His Thr Gln Ala Gln Asp Gly  
 1130 1135 1140  
 25 Ala Ile Ser Thr Asp Ala Glu Gly Lys Glu Glu Glu Gly Glu Ser  
 1145 1150 1155  
 30 Pro Leu Asp Ser Leu Ala Glu Thr Phe Trp Glu Thr Thr Lys Trp  
 1160 1165 1170  
 35 Thr Asp Leu Phe Asp Asn Lys Val Leu Thr Phe Ala Tyr Lys His  
 1175 1180 1185  
 40 Ala Leu Val Asn Lys Met Tyr Gly Arg Gly Leu Lys Phe Ala Thr  
 1190 1195 1200  
 45 Lys Leu Val Glu Glu Lys Pro Thr Lys Glu Asn Trp Lys Asn Cys  
 1205 1210 1215  
 50 Ile Gln Leu Met Lys Leu Leu Gly Trp Thr His Cys Ala Ser Phe  
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10	Ala Cys His Ala Tyr Gln Ile Ile His Arg Asn Gly Ile Pro Asp Glu 50 55 60		
15	Gln Ile Val Val Met Met Tyr Asp Asp Ile Ala Tyr Ser Glu Asp Asn 65 70 75 80		
20	Pro Thr Pro Gly Ile Val Ile Asn Arg Pro Asn Gly Thr Asp Val Tyr 85 90 95		
25	Gln Gly Val Pro Lys Asp Tyr Thr Gly Glu Asp Val Thr Pro Gln Asn 100 105 110		
30	Phe Leu Ala Val Leu Arg Gly Asp Ala Glu Ala Val Lys Gly Ile Gly 115 120 125		
35	Ser Gly Lys Val Leu Lys Ser Gly Pro Gln Asp His Val Phe Ile Tyr 130 135 140		
40	Phe Thr Asp His Gly Ser Thr Gly Ile Leu Val Phe Pro Asn Glu Asp 145 150 155 160		
45	Leu His Val Lys Asp Leu Asn Glu Thr Ile His Tyr Met Tyr Lys His 165 170 175		
50	Lys Met Tyr Arg Lys Met Val Phe Tyr Ile Glu Ala Cys Glu Ser Gly 180 185 190		
55	Ser Met Met Asn His Leu Pro Asp Asn Ile Asn Val Tyr Ala Thr Thr 195 200 205		
60	Ala Ala Asn Pro Arg Glu Ser Ser Tyr Ala Cys Tyr Tyr Asp Glu Lys 210 215 220		
65	Arg Ser Thr Tyr Leu Gly Asp Trp Tyr Ser Val Asn Trp Met Glu Asp 225 230 235 240		
70	Ser Asp Val Glu Asp Leu Thr Lys Glu Thr Leu His Lys Gln Tyr His 245 250 255		
	Leu Val Lys Ser His Thr Asn Thr Ser His Val Met Gln Tyr Gly Asn 260 265 270		
	Lys Thr Ile Ser Thr Met Lys Val Met Gln Phe Gln Gly Met Lys Arg 275 280 285		
	Lys Ala Ser Ser Pro Val Pro Leu Pro Pro Val Thr His Leu Asp Leu 290 295 300		

Thr Pro Ser Pro Asp Val Pro Leu Thr Ile Met Lys Arg Lys Leu Met  
 305 310 315 320  
 5 Asn Thr Asn Asp Leu Glu Glu Ser Arg Gln Leu Thr Glu Glu Ile Gln  
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 10 Arg His Leu Asp Ala Arg His Leu Ile Glu Lys Ser Val Arg Lys Ile  
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 15 Val Ser Leu Leu Ala Ala Ser Glu Ala Glu Val Glu Gln Leu Leu Ser  
 355 360 365  
 20 Glu Arg Ala Pro Leu Thr Gly His Ser Cys Tyr Pro Glu Ala Leu Leu  
 370 375 380  
 25 His Phe Arg Thr His Cys Phe Asn Trp His Ser Pro Thr Tyr Glu Tyr  
 385 390 395 400  
 30 Ala Leu Arg His Leu Tyr Val Leu Val Asn Leu Cys Glu Lys Pro Tyr  
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 60 Asn Gly Tyr Val Leu Trp Val Phe Ala Arg Leu Tyr Pro Cys Lys Lys  
 35 40 45  
 65 Phe Asn Glu Ile Lys Ile Phe Met Val Asn Leu Thr Met Ala Asp Met  
 50 55 60  
 70 Leu Phe Leu Ile Thr Leu Pro Leu Trp Ile Val Tyr Tyr Gln Asn Gln  
 65 70 80  
 Gly Asn Trp Ile Leu Pro Lys Phe Leu Cys Asn Val Ala Gly Cys Leu

	85	90	95
5	Phe Phe Ile Asn Thr Tyr Cys Ser Val	Ala Phe Leu Gly Val	Ile Thr
	100	105	110
10	Tyr Asn Arg Phe Gln Ala Val Thr Arg Pro Ile Lys Thr Ala Gln Ala		
	115	120	125
15	Asn Thr Arg Lys Arg Gly Ile Ser Leu Ser Leu Val Ile Trp Val Ala		
	130	135	140
20	Ile Val Gly Ala Ala Ser Tyr Phe Leu Ile Leu Asp Ser Thr Asn Thr		
	145	150	155
25	Val Pro Asp Ser Ala Gly Ser Gly Asn Val Thr Arg Cys Phe Glu His		
	165	170	175
30	Tyr Glu Lys Gly Ser Val Pro Val Leu Ile Ile His Ile Phe Ile Val		
	180	185	190
35	Phe Ser Phe Phe Leu Val Phe Leu Ile Ile Leu Phe Cys Asn Leu Val		
	195	200	205
40	Ile Ile Arg Thr Leu Leu Met Gln Pro Val Gln Gln Gln Arg Asn Ala		
	210	215	220
45	Glu Val Lys Arg Arg Ala Leu Trp Met Val Cys Thr Val Leu Ala Val		
	225	230	235
50	Phe Ile Ile Cys Phe Val Pro His His Val Val Gln Leu Pro Trp Thr		
	245	250	255
55	Leu Ala Glu Leu Gly Phe Gln Asp Ser Lys Phe His Gln Ala Ile Asn		
	260	265	270
60	Asp Ala His Gln Val Thr Leu Cys Leu Leu Ser Thr Asn Cys Val Leu		
	275	280	285
65	Asp Pro Val Ile Tyr Cys Phe Leu Thr Lys Lys Phe Arg Lys His Leu		
	290	295	300
70	Thr Glu Lys Phe Tyr Ser Met Arg Ser Ser Arg Lys Cys Ser Arg Ala		
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20 Glu Thr Gln Leu Ile Gly Asp Gly Glu Leu Ser Leu Ser Arg Ser Leu  
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Val Asn Ser Ser Asp Lys Ile Ile Arg Lys Ala Gly Ser Ser Ile Phe  
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25 Gln His Asn Val Glu Gly Trp Lys Ile Asn Ser Ser Leu Val Leu Glu  
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30 Ile Arg Lys Asn Ile Leu Arg Phe Leu Asp Ala Glu Arg Asp Val Ser  
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35 Val Val Lys Ser Ser Phe Lys Pro Gly Asp Val Ile His Tyr Val Leu  
 100 105 110

40 Asp Arg Arg Arg Thr Leu Asn Ile Ser His Asp Leu His Ser Leu Leu  
 115 120 125

45 Pro Glu Val Ser Pro Met Lys Asn Arg Arg Phe Lys Thr Cys Ala Val  
 130 135 140

Val Gly Asn Ser Gly Ile Leu Leu Asp Ser Glu Cys Gly Lys Glu Ile  
 145 150 155 160

50 Asp Ser His Asn Phe Val Ile Arg Cys Asn Leu Ala Pro Val Val Glu  
 165 170 175

55 Phe Ala Ala Asp Val Gly Thr Lys Ser Asp Phe Ile Thr Met Asn Pro  
 180 185 190

60 Ser Val Val Gln Arg Ala Phe Gly Gly Phe Arg Asn Glu Ser Asp Arg  
 195 200 205

Glu Lys Phe Val His Arg Leu Ser Met Leu Asn Asp Ser Val Leu Trp  
 210 215 220

65 Ile Pro Ala Phe Met Val Lys Gly Gly Glu Lys His Val Glu Trp Val  
 225 230 235 240

70 Asn Ala Leu Ile Leu Lys Asn Lys Leu Lys Val Arg Thr Ala Tyr Pro

245 250 255  
 5 Ser Leu Arg Leu Ile His Ala Val Arg Gly Tyr Trp Leu Thr Asn Lys  
 260 265 270  
 10 Val Pro Ile Lys Arg Pro Ser Thr Gly Leu Leu Met Tyr Thr Leu Ala  
 275 280 285  
 15 Thr Arg Phe Cys Asp Glu Ile His Leu Tyr Gly Phe Trp Pro Phe Pro  
 290 295 300  
 20 Lys Asp Leu Asn Gly Lys Ala Val Lys Tyr His Tyr Tyr Asp Asp Leu  
 305 310 315 320  
 25 Lys Tyr Arg Tyr Phe Ser Asn Ala Ser Pro His Arg Met Pro Leu Glu  
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 35 40 45  
 60 Ala Thr Arg Ser Ile Gln Val Asp Gly Lys Thr Ile Lys Ala Gln Ile  
 50 55 60  
 65 Trp Asp Thr Ala Gly Gln Glu Arg Tyr Arg Ala Ile Thr Ser Ala Tyr  
 65 70 75 80  
 70 Tyr Arg Gly Ala Val Gly Ala Leu Leu Val Tyr Asp Ile Ala Lys His  
 85 90 95  
 Leu Thr Tyr Glu Asn Val Glu Arg Trp Leu Lys Glu Leu Arg Asp His  
 100 105 110

Ala Asp Ser Asn Ile Val Ile Met Leu Val Gly Asn Lys Ser Asp Leu  
115 120 125

5 Arg His Leu Arg Ala Val Pro Thr Asp Glu Ala Arg Ala Phe Ala Glu  
130 135 140

10 Lys Asn Asn Leu Ser Phe Ile Glu Thr Ser Ala Leu Asp Ser Thr Asn  
145 150 155 160

15 Val Glu Glu Ala Phe Lys Asn Ile Leu Thr Glu Ile Tyr Arg Ile Val  
165 170 175

20 Ser Gln Lys Gln Ile Ala Asp Arg Ala Ala His Asp Glu Ser Pro Gly  
180 185 190

25 Asn Asn Val Val Asp Ile Ser Val Pro Pro Thr Thr Asp Gly Gln Lys  
195 200 205

30 Pro Asn Lys Leu Gln Cys Cys Gln Asn Leu  
210 215